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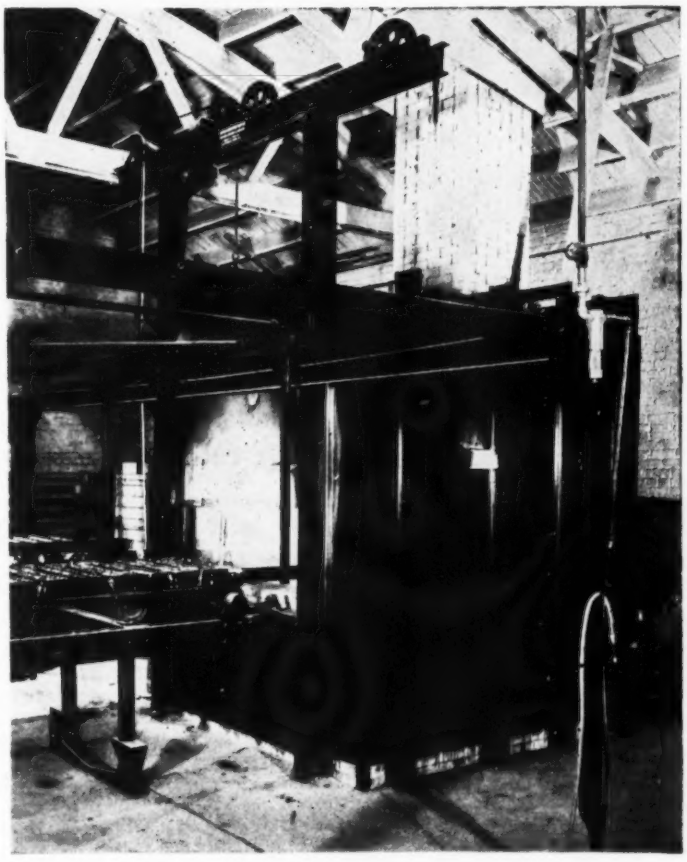

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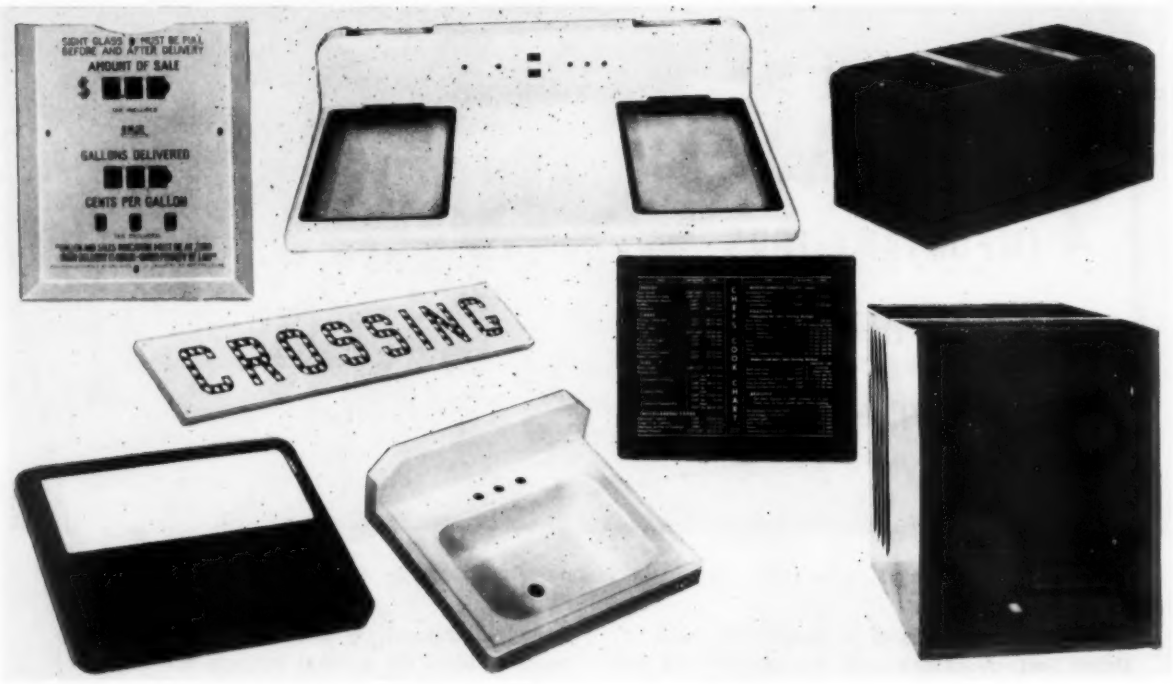

for a company . . . so young as this

A little more than five months have passed since The Ervite Corporation began production. The items pictured above — all Ervite porcelain enameled — prove that we have done well for a company so young.

This modern porcelain enameling plant is directed by men who have had many years of experience in the enameling industry. But, just as the plant is new and up-to-date, all of us have a young and fresh viewpoint on everything pertaining to porcelain enameling production.

Of course we are busy right now, but we're never too busy to talk to anyone who has a production problem involving the use of porcelain enameling.

Pictured are a few of the parts which were Ervite enameled during our short five months of actual production.

ERVITE

ERVITE CORPORATION • ERIE, PENNSYLVANIA

THE Finish Line

WHO WILL BE THE FIRST — among the refrigerator manufacturers to produce that "standard" refrigerator of popular size with *porcelain enameled exterior?*

It is inevitable that some important manufacturer will take this step and build, on a high production basis, a popular "all-porcelain" refrigerator to sell at a price comparable to the present organic finished cabinet. The manufacturer who takes the step first will have a definite head start in the trend to better cabinet exteriors.

"This is just as good, Mrs. Jones."

Thousands of Mrs. Joneses, Mrs. Browns and Mrs. Smiths all over the country have become "fed up" on the "This is just as good" story, which is the salesman's stock and trade in many cases to make an easier sale of an organic finished refrigerator rather than invoke the extra effort required to "sell up" to the "deluxe" porcelain enameled job with its extra dogadgets and thingamajigs at a resulting premium price.

Years make a difference

It's true! Many a buyer can't tell the difference on the sales floor between porcelain enamel and competing finishes. That's one reason why porcelain enameled exteriors dropped from 55 per cent to a mere trickle of sales before the war. Today, most housewives have had a few extra years to observe the difference in household product finishing. Many a refrigerator that is still "mechanically" sound has, during the war, become a definite eyesore in an otherwise sparkling kitchen. Yellowing, wear around door handles, scratches, mars and stains have all taken their toll in the appearance of many of these refrigerators in the homes of the Mrs. Joneses, Mrs. Browns and Mrs. Smiths.

There are just enough of the Mrs. Greens and Mrs. Whites who had the good fortune to buy porcelain enameled refrigerators to offer a striking contrast after these few extra years of use.

Let's get in production

Sure, it is still possible to build the "deluxe" type of refrigerator with porcelain enameled exterior and sell it in reasonable quantities at a much higher price, because they are worth it for the everlasting value of the finish alone — but — the real answer to consumer satisfaction is to put the porcelain enameled refrigerator on a high production basis and make it available to the many thousands of buyers who want the "better" finish but can't afford the premium price.

Make the outside as good as the inside

More than one manufacturer has said that if porcelain enameled refrigerators were produced in comparable quantities to those with organic finishes, and built to carry the same equipment, the manufacturing cost would also be comparable.

Porcelain enamel is the *only* satisfactory finish for the inside of a refrigerator, and it remains the *best* finish for the exterior. The lengthening lifetime of the mechanical units used to power this important equipment needs a "lifetime" finish to make the picture complete. You can mark it down that someone is going to do this job. Who will be the first?

Dana Chase

EDITOR AND PUBLISHER

Unusual contemporary design features of the new Benjamin Electric Mfg. Company testing and development laboratory are revealed in this detail of the southern elevation. Dominant functional design feature is the two-story central photometric, electrical and physical testing laboratory unit. Overhanging eaves keep out summer heat while admitting light to the electrical and physical test sections. The laboratory was designed by Philip Will, Jr., partner in Perkins & Will. Landscaping designed and supervised by William A. Dean.

We built a laboratory

to meet our FUTURE needs

Detailed description of a completely equipped laboratory building designed for research, testing, and development work in the lighting field

By Hoyt P. Steele • VICE PRESIDENT, BENJAMIN ELECTRIC MFG. CO., DES PLAINES, ILLINOIS

Exclusive feature finish

* It has always been the policy of our company throughout its forty-five years as a manufacturer of lighting products and other electrical and porcelain enameled products to keep abreast of all technical advancement in our field and to maintain products at uniform standards of quality, performance, durability and construction. Benjamin was one of the first to manufacture porcelain enamel reflectors, and this phase of our production has always been considered one of the most important factors of our business due to the natural characteristics of porcelain enamel as a finish which gives to lighting reflectors and other products the durability and continued efficiency so important in the lighting field.

In support of our policies, experimental testing and development work is a major function of the company's engineering department.

Expanded facilities for testing, development and experimental activities

When the end of the war approached, the management of the company recognized that to meet the highly competitive conditions of the future and to maintain its position of leadership in the lighting equipment industry, expanded facilities for testing, development and experimental activities were a prime necessity. As a result it was decided in 1944 to construct a new development and testing laboratory building as part of the three year expansion and development program. Construction on the new building was started in the fall of 1945 and the new laboratory was dedicated in June 1946, which is also the month in which the company celebrated its 45th anniversary.

In recognition of its major objective this new laboratory was dedicated to the Advancement of the Science and Art of Illumination.

Technical development to be based on basic scientific research

In any development activities for new and better products and new and better manufacturing methods industry uses the findings and contributions of basic scientific research carried on by educational institutions and industry foundations such as are sponsored by the Illuminating Engineering Society. It then becomes the function of the individual manufacturers to apply these findings to technical development and it is for this purpose that the new Benjamin Laboratory has been built and equipped.

The company's products include porcelain enameled steel reflectors; explosion-proof, dust-tight and vapor-tight lighting units; fluorescent lighting equipment; mercury vapor lighting units; floodlights' industrial sockets and fittings and other components; signal horns, howlers and buzzers; porcelain enameled washing machine tubs; porcelain enameled table tops; and other porcelain enameled parts for leading manufacturers of furniture, equipment and appliances. The company's electrical products are sold through a select list of electrical wholesalers acting as distributors and through them supplied to electrical contractors who serve industrial plants, gasoline service stations, offices, schools, stores, laundries, printers, dry cleaners, bakeries, sports and play-areas and farms.

The company feels that it is among the first of the medium sized companies in the lighting equipment and electrical industry to have had the courage to make the expenditures for this addition, but it also feels that the investment will be amply repaid in terms of better products and better customer satisfaction and increased demand for its lighting units and other products.

In designing the building, the architect, Mr. Philip Will, Jr., of Perkins and Will, has utilized most effectively the available ground area and adapted the outside appearance of the building to the surroundings in a unique way, which has evoked many inquiries and comments from the community in which the plant is located.

Surroundings considered in design of building

Originally located on the edge of the city of Des Plaines, the plant is now being surrounded by suburban homes and real estate developments. Recognizing the importance of contributing toward the appearance of the community, the completion of the laboratory initiated a program of landscaping and improving the grounds which surround the plant, and it is expected that this program will be completed over the next two to three years.

Modern in its design tempo, the Benjamin Testing and Development Laboratory presents an interesting solution to a complex architectural and engineering problem. Dominant functional design feature is the two-story

* Exclusive for the porcelain enameling industry.

This striking entrance leads to a reception room for visitors.

Checking tests in temperature control chamber. Salt spray machine in foreground.

PHOTOS, HEDRICH-BLESSING STUDIO

The model shop is provided with 100 footcandles of glareless illumination.

central photometric, electrical and physical testing laboratory unit. The overhanging eaves keep out summer heat while admitting light to the electrical and physical test sections of the laboratory. The diagonal "splayed jib" brick supporting walls provide a striking display feature adding dynamic interest to the design. Adjacent to the electrical and physical laboratory unit is the isolated, one-story acoustical laboratory. The long, low portion of the building includes a model shop and a conference room. The long horizontal glass window on the first floor opens on a curved corridor containing product displays. In the "vee" above the photometric lab is a "weathering tower" upon which outdoor floodlights receive year-around testing.

The electrical section

The heart of the Electrical Section's circulatory system is the control and distribution board. It provides an electronically controlled variable frequency alternater which produces frequencies from 12 to 70 cycles at a range of 12 to 250 volts as required. This is accomplished with the aid of a General Electric Thy-Mo-Trol unit in which Thyratron tubes are used. A distribution board also provides controls for a remotely mounted direct current motor generator set to produce the following voltage ranges: 5 to 30 volts D.C., 30 to 150 volts D.C., 150 to 280 volts D.C. On the board is also mounted a variable autotransformer for obtaining voltage ranges from 1 to 270 volts, 60 cycle. In addition the distribution board provides separate supplies of alternating current at 230 volts, 60 cycle, 230 volts 60 cycle 3 phase, and 115 volts 60 cycle through constant voltage transformers with a regulation of plus or minus one volt. The third part of this board is a plug-in type distribution panel from which it is possible to distribute various ranges of alternating and direct current to the test benches and other sections of the laboratory affording the correct form of current for the various tests or experiments.

The electrical section also contains instruments for measuring the hardness and the tensile, compression and

torsional strength of materials or parts used in the manufacture of lighting equipment.

The physical test section

This section includes a Weather-Ometer, a Humidity Chamber, a Controlled Temperature Chamber, a Salt Spray Machine and a Vibration Tester. These serve as a means of controlling quality and aiding in the development of products and finishes. This section also has the Weathering Tower on the top of the building which is used to test floodlights and other outdoor lighting equipment under actual conditions which are simulated within the laboratory.

In the Humidity Room we can simulate rain conditions equal to one foot of rain per hour with the equivalent of a 42 mile wind velocity. Normal humidity tests, with a temperature of 100° F., and a humidity of 99%, are usually run 1,000 hours for normal application and 2,000 hours for unusual conditions.

The controlled temperature chamber has both heat and refrigeration controlled from the outside, to provide ambient test temperatures within the chamber from minus 10° F. to 212° F. With this equipment, lighting units can be tested at ambient temperatures within the range of the chamber, and operating temperatures within or on the exterior of the lighting units can be measured by the use of thermocouples. The room is provided with an electrical control panel, which makes it possible to operate lighting equipment under test within the chamber at various time intervals of on and off.

We have found through experience that the salt spray equipment can operate week in and week out with the specific gravity of the atomized salt spray, humidity and temperature, and quantity of spray under perfect control.

On the vibration tester, amplitudes from .020 to ½" may be obtained at frequencies from 10 to 60 cycles per second. In addition, this equipment can provide automatic cycling during a test whereby a frequency of 10 cycles per second is accelerated uniformly to a frequency of 55 cycles

to Page 49 →

Conference room for engineering meetings and lighting conferences.

The specially designed switchboard distributes current to laboratory test stations.

PHOTOS, HEDRICH-BLESSING STUDIO

Above the laboratory is the "Weathering Tower" for testing outdoor fixtures.

Have you considered overfire jets for smoke abatement?

a complete outline of methods and equipment requirements for effective smoke abatement—important reading for every enamel plant engineer

By William S. Major • DEVELOPMENT ENGINEER, BITUMINOUS COAL RESEARCH INC.

Exclusive feature finish

The value of overfire air in Smoke Abatement is being given increasing recognition by the manufacturers of steam generating equipment. They have not only appreciated that smoke means sacrifice of efficiency, but also realized that it jeopardizes public relations. New units are generally installed with carefully designed and proportioned furnaces, often with overfire air, to meet the fuel and load conditions of a specific application. Automatic combustion control is also beneficial in maintaining proper proportions of fuel and air for minimum smoke. Many of the larger units are equipped with cinder or fly ash collectors that trap a large percentage of cinder and fly ash from the gases before they enter the stack.

There are many plants, however, having older and less efficient equipment, where the problem of smoke control is not as easy. In most cases, there is a strong desire on the part of both owner and plant operator to cooperate on smoke abatement. Due to the age of their boilers and furnaces, it is necessary that any device for assisting in smoke abatement be relatively inexpensive, easy to install, and have a moderate operating cost.

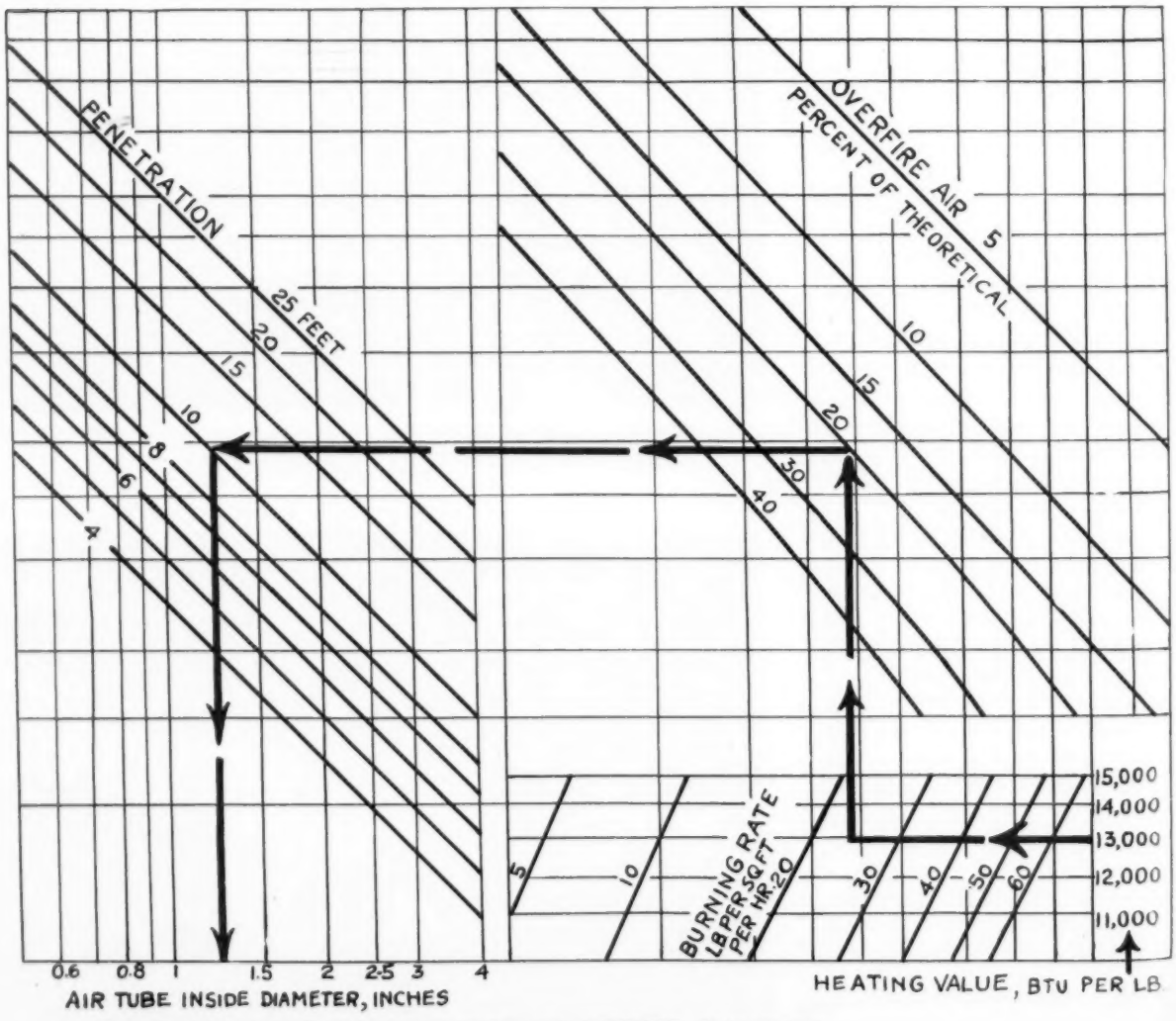

FIG. 1 CHART FOR CALCULATION OF AIRTUBE DIAMETER

Auxiliary Overfire Air is one of the best tools of this nature that is available today. This air can be introduced by moderate or high-pressure blowers or high-pressure steam jets. Since operating cost usually favors blower jets, they should be carefully investigated before proceeding with steam-air jets. There are cases, however, where steam-air jets are justified. Such cases include where blowers are not available, initial cost is prohibitive, and where turbulence only is needed and additional air would be detrimental to furnace performance.

Cause of smoke

At this point, it might be well to mention the generally accepted theory of the causes of smoke. This will, in turn, convey a better conception of just why overfire jets help in smoke prevention. Smoke is finely divided carbon and soot particles resulting from the decomposition of hydrocarbon vapors that were heated to high temperature with insufficient oxygen to burn them. This condition frequently takes place above the fuel bed of hand-fired and stoker-fired furnaces due to the lack of sufficient oxygen, adequate turbulence, or a combination of both conditions. Here is where the overfire jets play their part. Blower jets will provide both air and turbulence. Steam jets, however, may be designed to provide turbulence only or both air and turbulence, as the case might warrant.

Research on jets

Various forms and types of overfire jets have been employed for many years. Earlier jets, however, were largely designed outside of scientific lines and with little, if any, knowledge of the proper sizes of the component parts. With steam-air jets, the steam consumption was frequently high for the quantity of air delivered to the furnace. Then, too, the jets were, in many cases, operated continuously even though furnace conditions only required intermittent jet assistance.

Realizing the inherent advantages of overfire air, but recognizing the mechanical limitations of earlier jet designs, Bituminous Coal Research,

FIGURE 2 RECOMMENDED CENTERLINE SPACING OF AIR TUBES (TO NEAREST INCH)

Penetration Length Feet	AIR TUBE DIAMETER - INCHES					
	0.5	1	1.5	2	3	4
4	5	5	6	7	8	9
6	7	7	8	9	10	11
8	10	10	11	12	13	14
10	12	12	13	14	15	16
12	15	15	16	17	18	19
14	17	17	18	19	20	21
16	19	19	20	21	22	23
18	22	22	23	24	25	26
20	24	24	25	26	27	28
25	30	30	31	32	33	34

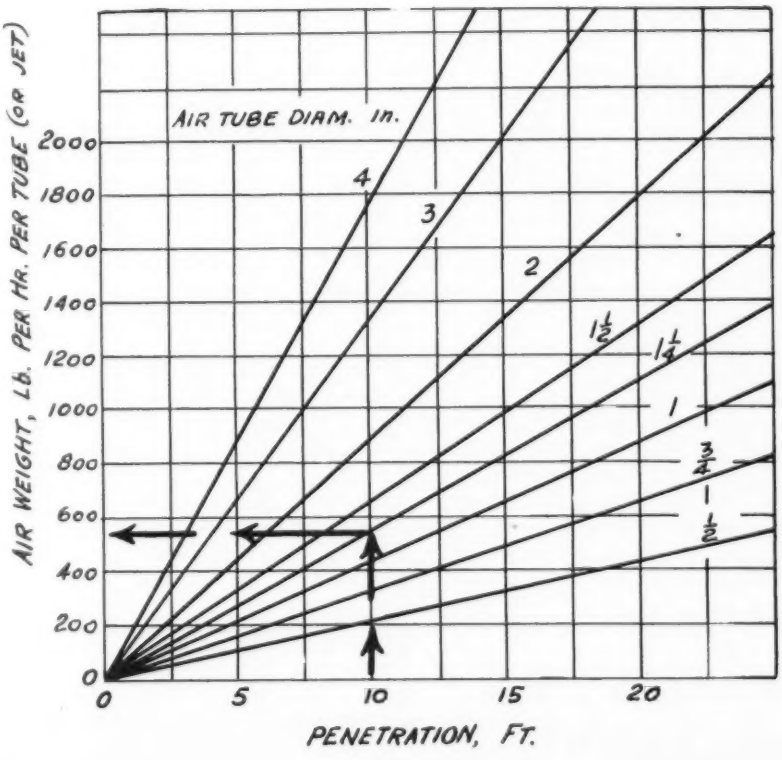

FIGURE 3. CALCULATION CHART FOR AIR WEIGHT PER TUBE

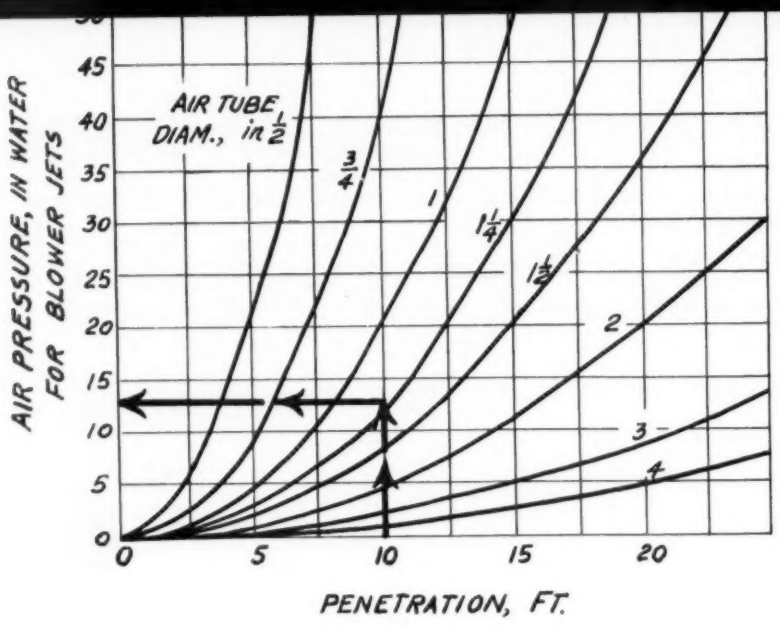

FIGURE 4 CALCULATION CHART FOR BLOWER PRESSURE.

Inc., started a thorough investigation early in 1942. This research work has been conducted under the supervision of Ralph A. Sherman, Supervisor, Fuels Division, Battelle Memorial Institute, Columbus, Ohio. R. B. Engdahl, research engineer, made extensive studies and tests on such factors as air entrainment with different tube diameters and lengths, steam consumption of various sizes and types of nozzles, flow characteristics, etc. This information, coupled with the valuable experience of many smoke departments and combustion engineers, revealed important design characteristics and relationships that should be incorporated in the ideal overfire jet.

It was found with steam jets that optimum air tube performance is obtained when the tube length is 5 to 10 times its diameter. The steam nozzle should be centered to 1/32 inch of the air tube axis, and located 1/2 to 1 diameter back of the air tube inlet. The muffler or silencer around the air tube inlet should have sufficient air admitting area to give a velocity of not over 2000 feet per minute.

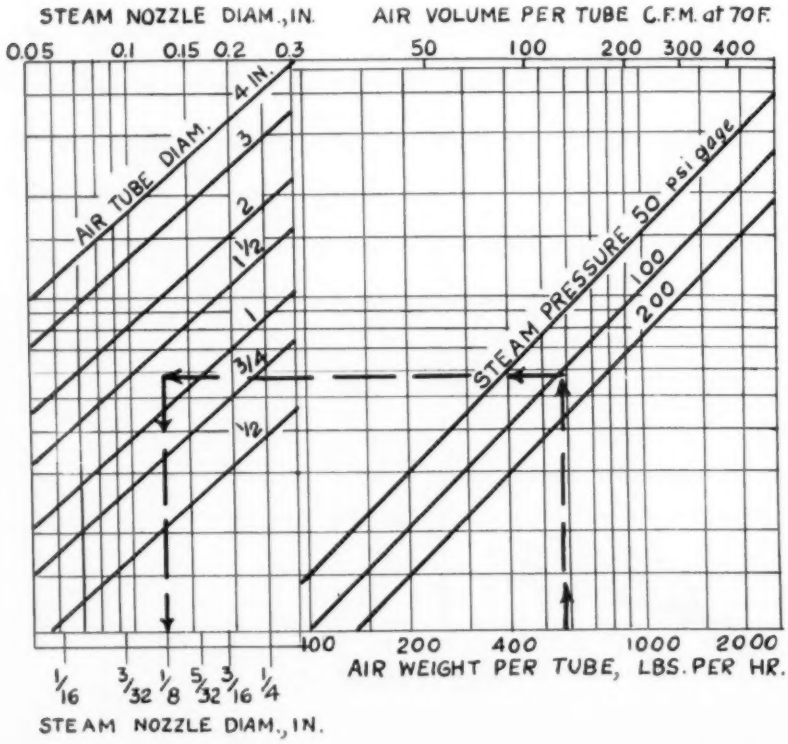

FIGURE 6. STEAM NOZZLE SELECTION CHART.

Design of jet systems

The design of blower jets or steam jets has been made easy through crystallizing many of the influencing factors into charts as shown by Figures 1, 2, 3, 4, 6 and 7. *(Prepared by the Battelle Memorial Institute Staff Engineers.)* The design of a blower system with the assistance of these graphs is best illustrated by citing a representative study. The preliminary data that must be obtained before using the charts is noted:

Heating Value of Coal . 13,000 B.T.U.

Burning Rate Per Sq. Ft. of Grate Per Hour .....25 lbs. Obtained by dividing the maximum coal burned per hour by the square feet of grate area — Example: 2000 lbs. of coal divided by 80 sq. ft.

Smoke Density .....Moderate

Desired Jet Penetration.....10 Feet Obtained by fuel bed observation — basis of a uniformly smoky fuel bed over the entire grate area. If repeated observations show smoky condition only exists over part of fuel bed, the length of penetration may be reduced accordingly.

Grate Size...8 Ft. Wide; 10 Ft. Long (80 Sq. Ft.)

All of the above data is expressed in terms for direct use on the charts with the exception of the smoke density. This must be converted to the estimated percentage of overfire air to be injected into the furnace. By means of the following guide, it will be noted that a moderate smoke represents a requirement for approximately 20% overfire air.

Density of Smoke	Approximate Amount of Overfire Air Required
Light	10%
Moderate	20%
Heavy	30%

From Figure 1, the air tube di-

ameter is found to be 1.25 inches. Using this tube diameter on Figure 2, the spacing of tubes is found to be about 13 inches. The number of air tubes required is found by dividing the inside length of the furnace wall by the distance of air tube spacing, and subtracting one (1). Fractions should be converted to the nearest whole number.

Example:

$$\frac{8 \text{ (feet)} \times 12 \text{ (inches per foot)}}{13 \text{ (inches tube spacing)}} - 1 = 6 \text{ air tubes}$$

For this project, it was assumed that the air tubes were to be located in the front wall. The end tubes should be located about 1 tube space, 13 inches, from the adjacent side wall, and the remaining four tubes spaced equally across the front wall.

From Figure 3, the amount of air to be injected into the furnace per tube is found to be about 550 lbs. per hour. Thus, the total air to be supplied by the six (6) tubes is 3300 lbs. per hour. This is equivalent to 733 C.F.M.* of 70°F air. The air pressure of 13 inches required at the entrance of the tubes is obtained from Figure 4. This pressure may also be taken as the blower pressure, if the duct velocity does not exceed 2000 F.P.M. and there are no sharp bends or abrupt changes in area.

Blower jets

The essential details for a blower overfire air system are shown on Figure 5. These construction details and relationships should be adhered to closely in order to obtain the maximum benefits and economy of operation.

(*) *Basis .075 lb. of air equals 1 cu.ft. at 70° F.*

Steam jets

The procedure for the design of steam-air jets is the same as previously explained for blower jets. It is not necessary, however, to calculate total air weight and convert it to C.F.M. The air weight per tube per hour may be used directly on Figure 6 to obtain the steam nozzle diameter. For the previous example, the steam nozzle diameter is found to be 1/8 inch if the steam pressure is 100 psi gage.

Figure 7 showing steam flow for

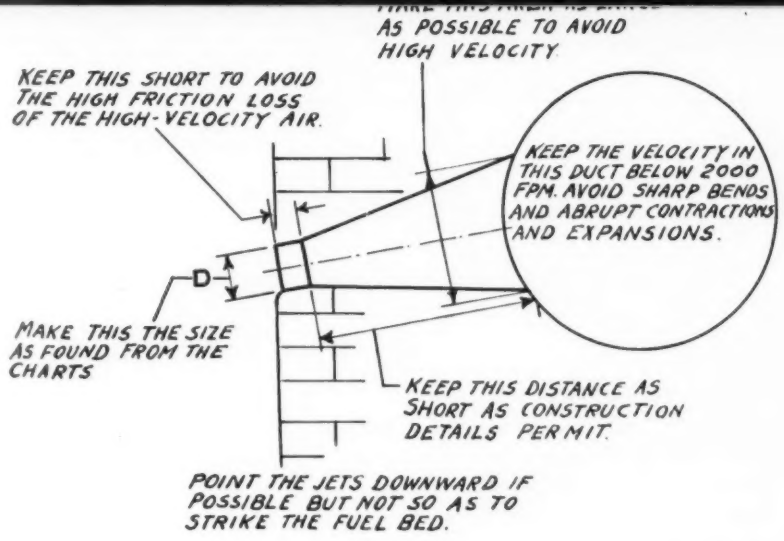
AS POSSIBLE TO AVOID HIGH VELOCITY
KEEP THIS SHORT TO AVOID THE HIGH FRICTION LOSS OF THE HIGH-VELOCITY AIR.
KEEP THE VELOCITY IN THIS DUCT BELOW 2000 FPM. AVOID SHARP BENDS AND ABRUPT CONTRACTIONS AND EXPANSIONS.
D
MAKE THIS THE SIZE AS FOUND FROM THE CHARTS
KEEP THIS DISTANCE AS SHORT AS CONSTRUCTION DETAILS PERMIT.
POINT THE JETS DOWNWARD IF POSSIBLE BUT NOT SO AS TO STRIKE THE FUEL BED.

FIGURE 5. CROSS-SECTION OF A BLOWER JET SHOWING ESSENTIAL CONSTRUCTION DETAILS.

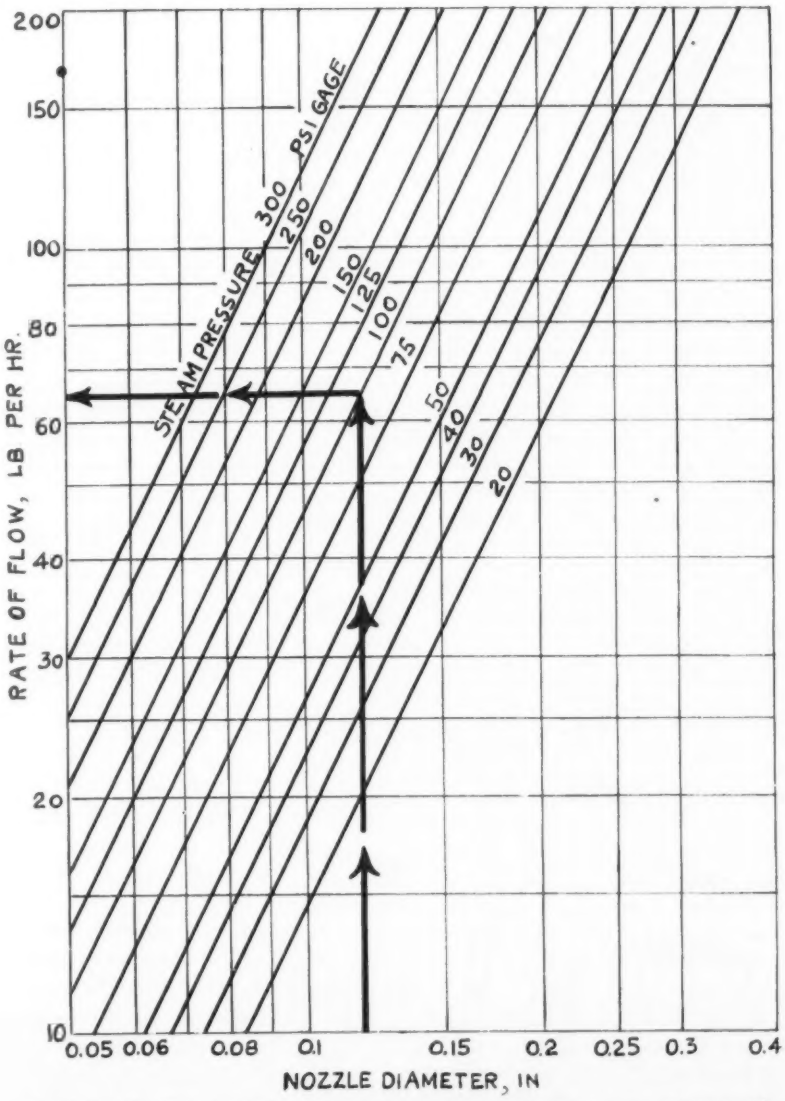

FIGURE 7 FLOW OF SATURATED STEAM ACCORDING TO GRASHOF'S EQUATION. ATMOSPHERIC DISCHARGE.

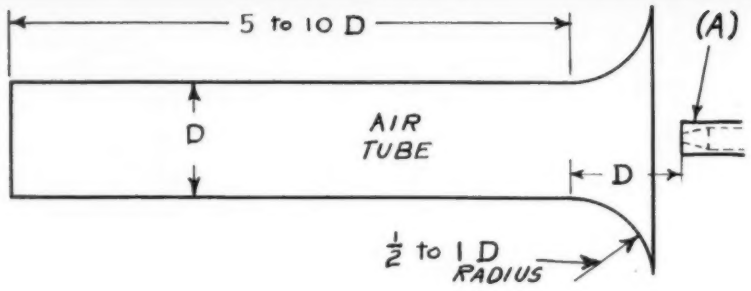

FIGURE 8. ESSENTIAL PROPORTIONS OF IDEAL STEAM-AIR JET (A) STEAM NOZZLE MUST BE CENTERED TO WITHIN $\frac{1}{32}$ INCH OF AXIS OF AIR TUBE.

different sizes of steam nozzles may be advantageously employed as a basis for estimating steam consumption of a particular steam-air jet system. To illustrate, Figure 7 shows that a ⅛ inch diameter nozzle at 100 psi gage steam pressure has a rate of flow of about 65 lbs. of steam per hour. Thus the 6 nozzles of the example study will consume about 390 pounds of steam per hour. The size of furnace and coal consumption of this study would readily generate 17,500 pounds of steam per hour. Thus the total steam consumption of the jets represents about 2.2% of the boiler output — if the jets are operated continuously. If operated 20% of the time, their steam consumption represents only four-tenths of one per cent of the boiler output.

In constructing the steam-air jet, the essential proportions shown on Figure 8 should be adhered to as closely as practical. The air tube can be made of standard pipe with the smooth funnel-shaped approach formed of plastic refractory. The approach can also be made by using a pipe coupling, reducing from at least two sizes larger than the air tube down to air-tube size. A standard pipe cap or plug may be used for the steam nozzle. The drilled hole which forms the nozzle should be countersunk to provide smooth flow of steam through the nozzle. To help resist erosion and promote longer life, the nozzles should preferably be machined from alloy cast iron or steel. Proper control and operation of the jets can only be obtained through building into the system valves and steam gages. These provide ready means for using minimum steam pressure and shutting the jets off when not needed. Hand-controlled purging valves or traps should be used to remove moisture from the lines. The previous remarks relating to the angularity of the jet and location to prevent impingement on fuel bed should be kept in mind.

Since the noise of unmuffled steam jets is quite annoying to plant operators, they should be equipped with silencers (mufflers). Two typical designs of mufflers that are used and have proven effective are shown on Figure 9. The relative dimensions shown should be followed closely in order to realize the maximum noise elimination when delivering air to the furnace.

In those cases where the desirable lengths of air tube is substantially less than the thickness of furnace wall, a construction as shown on Figure 10 may be used.

It is not unusual to find furnace conditions where smoking exists but gas analysis reveals adequate excess oxygen. This is a furnace requiring turbulence only. For this condition, the steam line should be extended through the air tube and the steam nozzle located not over 1 tube diameter from the furnace end of the air tube. This construction is shown on Figure 11. The resultant small flow of air by furnace draft will serve to keep the nozzle cool when not in use.

Few definite rules can be made for jet location that are applicable to all furnaces with different types of firing equipment. One of the best means for determining jet location is to explore the furnace with a bare steam

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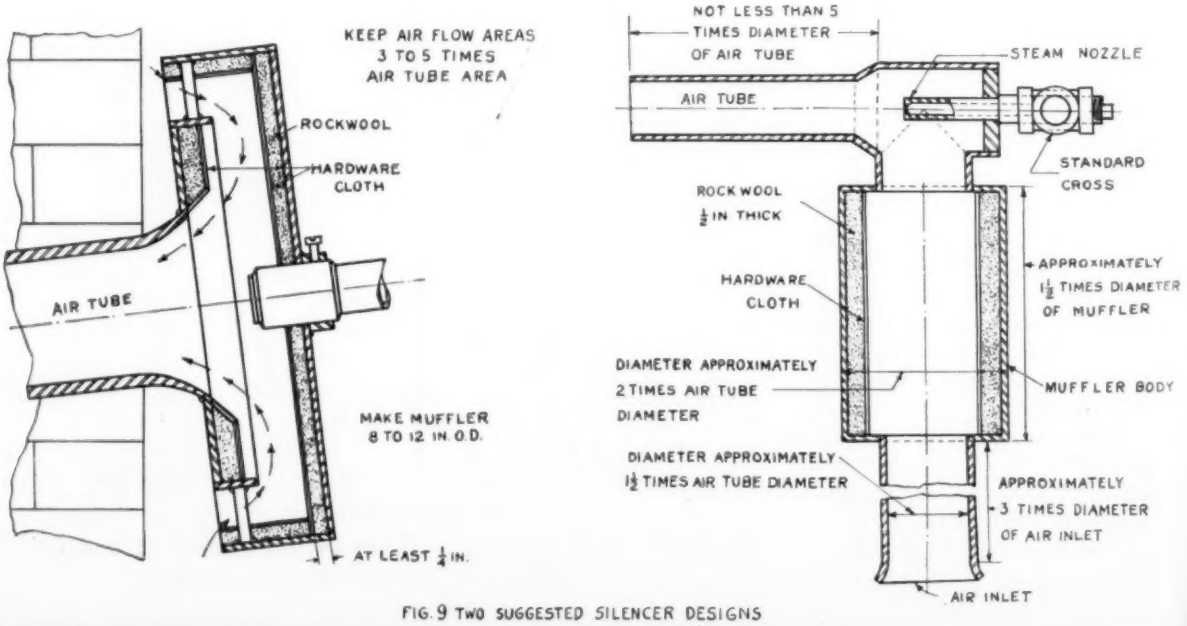


FIG. 9 TWO SUGGESTED SILENCER DESIGNS

Dryers and drying methods for porcelain enamel

first of a series of six detailed articles on drying and firing procedure

By Professor A. I. Andrews • ASSOCIATE EDITOR

ALTHOUGH enamels are not particularly sensitive to drying conditions, it is essential that they be dry before they are fired. If not dry, the high temperature of the furnace causes excessively rapid drying which results in an explosion of the coating or, if more gradual, a cracking which leads to tearing. In any case, firing defects may be caused by the accumulation of water vapor in the furnace atmosphere.

Enamels should be dried uniformly, and yet as rapidly as possible without developing a tendency to form drying defects. Slow drying of ground coats frequently causes rusting of the ware which results in a discoloration and an irregular surface in the fired enamel. Slow open air drying of cover enamels is objectionable, as it requires a great deal of floor space, and the coating is likely to become contaminated with dust and dirt. Too rapid or uneven drying of the enamel coating results in cracking which may lead to tearing and crawling during the firing operation.

Fundamentals

In the drying of enamels, the water is vaporized leaving the frit and mill additions in a dry condition. This water, which is distributed throughout the wet enamel layer with a film of water at the surface, evaporates only at this surface. In proper drying, the water evaporating from this surface layer is replaced by water which diffuses to the surface from between the grains of frit. The grains move closer together, causing the enamel layer to shrink. This process continues until all the grains contact each other and no more water can diffuse to the surface. The film then evaporates completely, and the liquid surface passes down between the grains of the enamel. No shrinkage accompanies this latter stage, but the last traces of water are removed with difficulty and only at elevated temperatures.

Heat is generally applied, in drying, to increase the water carrying capacity of the air, to increase the rate of evaporation, and to also increase the rate of diffusion of the water through the capillaries between the grains. Air circulation results in an increased drying rate because it removes the more highly saturated air at the surface of the enamel, and replaces it with drier air which can more readily take up the moisture.

If the enamel is dried too fast, the water film at the surface disappears. It vaporizes so rapidly that the water between the grains has no chance to diffuse to the surface and complete a uniform shrinkage within the coating. The disappearance of the film results in a complete drying and shrinkage of a thin upper layer of the enamel. The enamel underneath then dries very slowly, and in shrinking independently of the surface causes many small cracks and sometimes it shears away from the surface layer. These cracks then serve as starting points for the formation of larger cracks in firing. These larger cracks expose the underlying enamel or iron and result in defects such as tearing and copperheading.

With slow drying, the rust formed from the iron causes the enamel to lose the normal bubble structure generally developed during firing. Such rust spots are discolored and are not level with the rest of the enamel coating. Shorelining is another defect sometimes accompanying slow or uneven drying. It is caused by a gradual concentration of the soluble salts in the water until a supersaturated solution exists. These salts then precipitate out of solution along the border line of the dry and the wet part of the enamel layer. This defect is most common with uneyen drying and appears as a fuzzy or discolored line on the enamel after firing.

Controlling factors

To attain efficient drying, it is necessary to control the temperatures, the humidity, and the circulation.

In addition to the effect of temperature on the diffusion, an increase in the temperature of the water results in a higher vapor pressure and, therefore, a greater rate of evaporation. The temperature of the air is important as its ability to take up and hold water is greatly affected by it. Air at 200° F. will hold over ten times as much water vapor as air at 100° F.

The relative humidity of the air, that is, the relative amount of moisture which the air is actually holding

Editor's Note:

In this discussion of the fundamental principles involved in drying, Professor Andrews covers the influence of such factors as temperature, circulation and humidity. The use of radiant heat and convection are compared, and the room type and continuous dryer discussed. Constructive suggestions are offered.

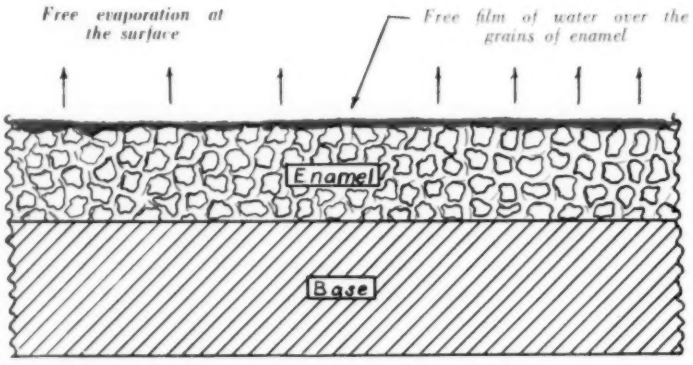
Later articles in the series cover fundamental principles, equipment, control, and operations incident to firing. Subjects of firing temperature time, proper support of the ware, uniformity of heating and cooling, and furnace atmospheric requirements are covered. Fuels are compared, and testing and checking of control instruments discussed. Each of these topics is discussed in detail.

This series has been adapted for *finish* from a comprehensive paper—"Drying and Firing"—presented before the Porcelain Enamel Institute Forum, Columbus, Ohio, Nov. 30, 1945.

Drying stages

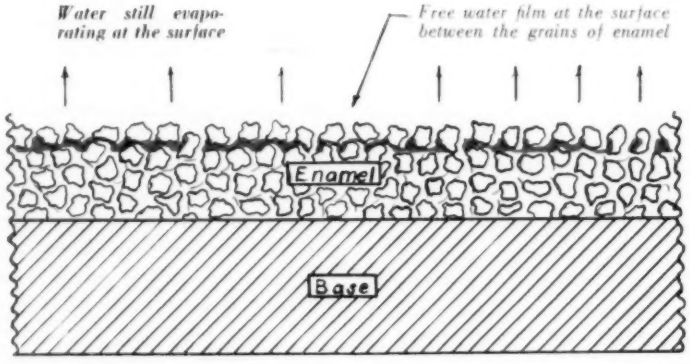
1st Stage

Wet enamel layer



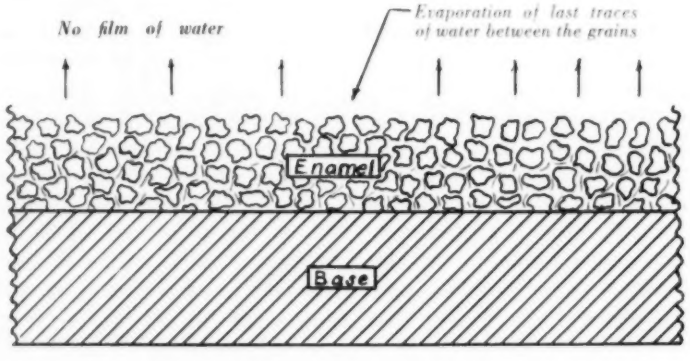
2nd Stage *

Particles of enamel with water in between them



3rd Stage *

Insufficient water present to maintain film



4th Stage — Dry enamel layer

*Shrinkage not shown

at a given temperature to the amount which it could hold at that temperature, is also important. As the relative humidity increases, the rate of evaporation or drying in that air decreases. In drying ceramic wares, an atmosphere having a high humidity is utilized to slow down the drying while the ware is being brought up to temperature. By then lowering the humidity of the air in the dryer, vaporization will take place under controlled conditions. By this method, the total time required for drying is actually decreased as at the elevated temperatures the moisture can diffuse more rapidly to the surface of the ware, therefore it can be allowed to evaporate safely at a more rapid rate.

This same procedure, but with a different objective, is utilized in the drying of gray ware enamels. After dipping, the ware is loaded on a conveyor which passes into a warm, humid section of the dryer where the rusting, which constitutes the mottle, takes place. The speed of the conveyor is regulated so that by the time the mottling is complete, the ware reaches the end of this chamber and enters one where the humidity is low where it quickly dries, thus arresting any further mottle formation.

The circulation of the air in the dryer provides for the removal of the more highly saturated air from the proximity of the ware and eventually from the dryer. It, therefore, promotes more rapid drying and yet at the same time, because of its equalizing tendency, contributes to the uniformity of the drying.

Methods of heating

The ware may be heated by circulation of warm air, by radiation, or by both. In the steam heated dryer or the waste heat dryer, most of the heating is done by warm air convection. It is necessary under these conditions to transfer heat from the air to the ware, and since the specific heat of air is low, considerable circulation is necessary. In such dryers, the drying must be done rather slowly to avoid surface drying and case hardening of the enamel coating. Drying cracks and tearing tend to develop, and the time cycle is rather long, necessitating a rather large

dryer. If radiant burners, combustion chambers, or infra-red lamps are used, the ware is heated primarily by radiation. By this method, the whole mass of the ware is more effectively heated and the drying rate can generally be controlled by the rate of air circulated and the humidity of the air. In general it permits much more rapid drying without the development of defects and, therefore, the dryers do not need to be as large.

Types of dryers

Enamel dryers are generally classed as room type and conveyor type dryers.

The room type dryer is characteristic of a general type. It is essentially a convection type of dryer with the hot air forced in at the bottom and slowly escaping at the top. It is generally constructed of sheet metal with about two inches of non-combustible insulation. However, when steam coils are used and the air from the interchanger can not attain high temperatures, other than non-combustible materials are sometimes used for construction. The ware is generally either piled or hung on multiple racks which are handled on skids by a lift truck. The racks are frequently made of wood, but in such cases a non-resinous wood must be used as resins boiling out of the wood and dripping on the ware causes blisters and other defects in the enamel. In some room type dryers, fans are provided for circulation, but rarely is the humidity controlled. In most installations of room type dryers, little if any engineering has been employed. They are often built and then modified to do a drying job, sometimes good and sometimes bad. In any case, the dryer should be kept clean to avoid contamination of the ware by flying dirt particles, and the doors should be tight fitting to avoid heat loss and dirt.

The continuous or tunnel type of dryer should be built with a cross section just large enough to safely pass the ware. It may have either a floor type, a side arm, or an overhead conveyor. The latter is the most common as most ware can be conveniently hung. Overhead conveyors

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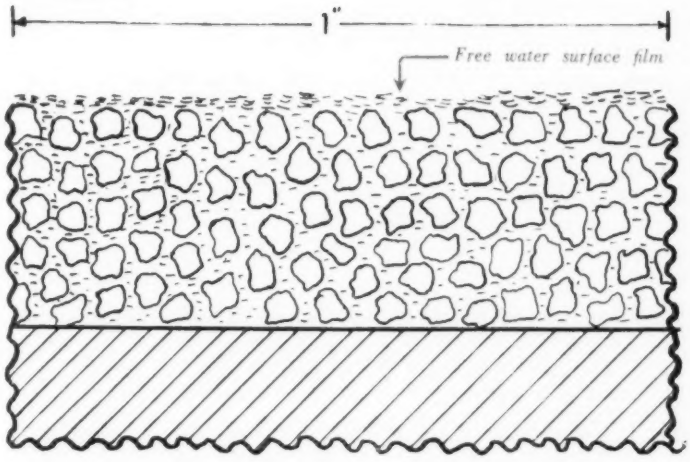
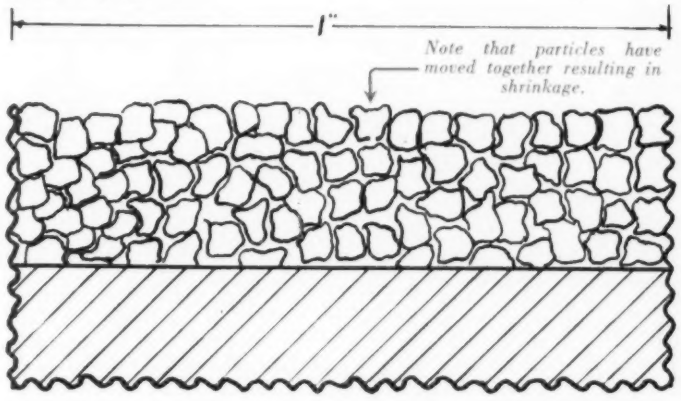
Shrinkage stages

Wet coating



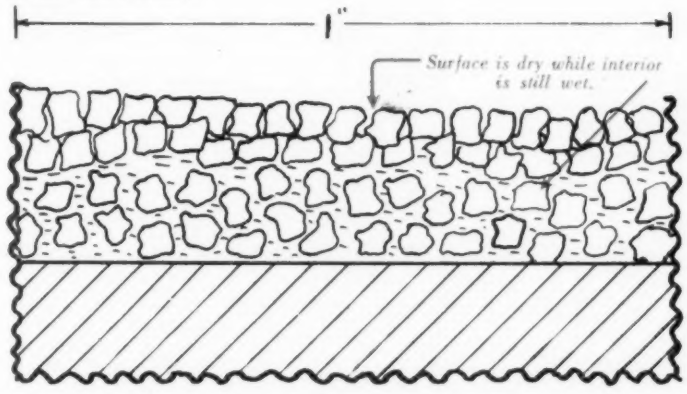
Note that water exists between the particles.

Proper drying



Water evaporates at the surface and also diffuses between the grains to the surface.

Drying too rapidly



Lower layer will dry and shrink later, rupturing the previously dried surface layer.

must, however, be provided with drip pans so that dirt and grease can not fall from the conveyor onto the ware. Provision should be made for cleaning the conveyor and the dryer, and the air within the dryer should be circulated either by convection or by fan. Although most of the air may be recirculated in the dryer, fresh air should always be added at the exit and exhaust air removed at the entrance. This provides the driest air for the ware at a stage where it is most difficult to dry.

Fuels for drying

In addition to the use of steam and heat from interchangers, practically all of the different kinds of available fuels are used. In the use of coal and oil as a fuel, a muffle is generally built under the floor of the dryer and the heat allowed to radiate up and be further distributed by convection of the air. Enamels do not seem to be particularly sensitive to the effects of the products of combustion, but in the case of coal and oil they must be protected from flying particles of soot and dirt.

Open gas flame burners are often used in dryers. They are usually installed in the bottom, and the heat is distributed principally by convection. In newer types of installations, however, the radiant type of burner has been tried and reports are very promising. Savings of 20% in gas consumption and an increase of 33⅓ per cent in the rate of drying porcelain enamel ware have been made. (1) The further use of infra-red burners should be encouraged as the principle is sound and early results are encouraging.

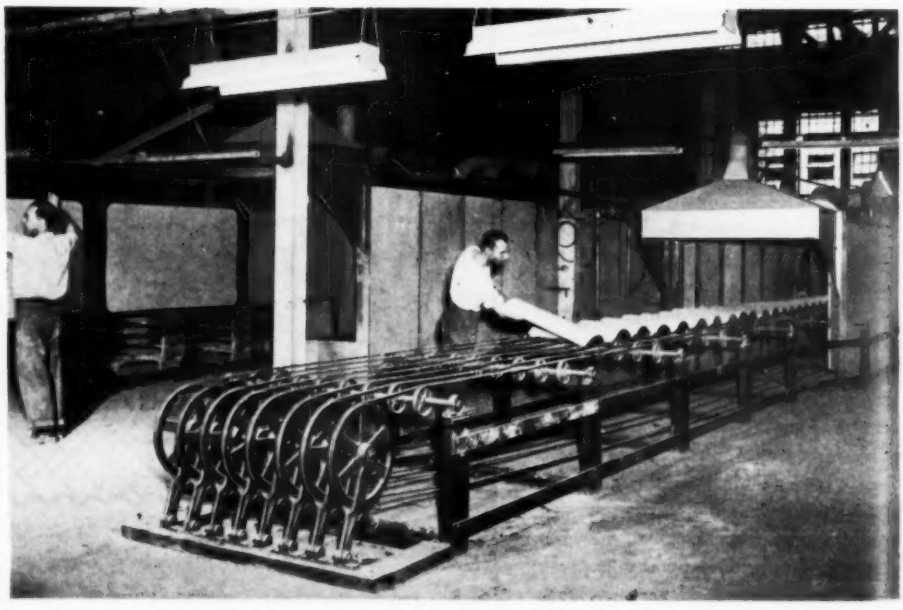
Electricity is a very convenient source of dryer heat, and where economics permits its use, it has many conveniences. The war interfered with the trial installations of infra-red lamps, and greatly slowed down the development work on this type of dryer. It is probable that electric heat will be given further trials as equipment again becomes available.

(1) W. H. Tesmer, Bul. Am. Cer. Soc., *24* 163 (1945)

"Furnaces and Firing Procedure," second of six detailed articles on drying and firing procedure by Professor A. I. Andrews, Head of the Department of Ceramics, University of Illinois, and Associate Editor of finish, *will appear in the September, 1946, issue.*

COURTESY DESPATCH OVEN COMPANY

The continuous-conveyor, tunnel-type oven located on factory floor is used for drying ground coat on flat ware. Directly overhead is a dryer for larger pieces, such as interiors of refrigerators. Ovens are direct gas-fired, using externally mounted heaters and large recirculating fans.



Unloading from both vertical and cable conveyor infrared dryers. The vertical dryer is 40' in length and is normally run at a chain speed of about 12' per minute. It has 32 infrared burners in two banks. Temperature of both dryers is accurately controlled through the use of controller pyrometers.

finishfoto

Porcelain enameled gas range withstands fire . . . all other household effects are destroyed

FIRES and their disastrous effect on life and property were discussed in "The Finish Line" in our July issue. Suggestions were offered concerning the use of porcelain enameled metal in hotel lobbies, cocktail lounges, night clubs and other places where crowds gather, as a prevention against flash fires. Reference was also made to "smaller" fires in homes,where charred ruins remain except for porcelain enameled appliances.

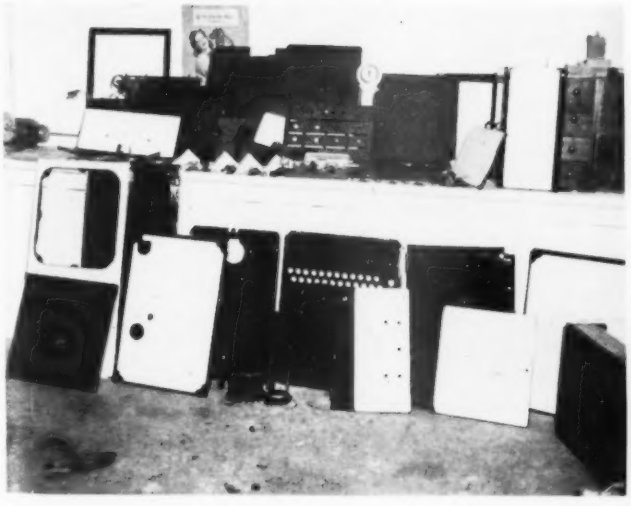
Coincident with the publishing of this editorial we received photographs and information on a typical instance where a "raging fire" completely destroyed the home of Mrs. Jack Rone, in Oklahoma City.

When Mrs. Rone took stock of the damage after the fire, she found her Magic Chef gas range to be the only piece of household equipment or furniture which remained in anything approaching recognizable shape. Unable to obtain a new range, Mrs. Rone called on H. M. Ladd, a range serviceman, to see if he could repair the old one. The report states that he not only could, but did dismantle and rebuild the range so that it was virtually returned to its original beauty and worked as well as when new.

The accompanying photographs show Mrs. Rone's range immediately after it was salvaged from the fire, the various range parts after Mr. Ladd disassembled and cleaned them, and the reassembled range "every bit as good as new."

Although everything else was destroyed by fire and a storage building virtually fell on the home, the porcelain enamel was undamaged except for two small marks on the cooking top. Japanned parts were refinished and insulation, which was watersoaked, was replaced. The complete list of replacement parts included: two springs; two eccentrics and pins; one oven pilot; two door handles; one red wheel; one pilot burner head; two rollers for broiler rack; one oven bottom; two oven door castings; and new wiring for electric light. Total cost for labor, parts, and installation was substantially less than $50.00.

Here's a shining example of how this ten year old range could "take it" *because* its exterior was completely protected with porcelain enamel, the *fireproof* finish.



Left: Mrs. Rone's gas range after the "raging fire." Below: The range is disassembled for cleaning and minor repairs. Right: Back in service—"every bit as good as new."

Westerners form enamelers club

Los Angeles inaugural meeting of fourth enamelers club

By Gilbert C. Close • LOS ANGELES CORRESPONDENT FOR FINISH

WITH the pervading determination that "we're going to show the Eastern boys we can do it too," Southern California enamelers met Friday evening, June 21, and organized the Pacific Coast Enamelers Club. Sponsoring the meeting, Glen Fulton, Norris Stamping and Manufacturing Co., Wally Bauer, Western Stove Co., and Richard Carno, O'Keefe and Merritt, acted as an organizing committee. The initial meeting was preceded by a half-hour of conversation and entertainment, followed by a get-together dinner.

Glen Fulton opened the meeting and requested everyone present to rise and introduce himself and give his company connection. Then he designated H. L. Richards, Norris Stamping and Mfg. Co., and editor of the "Norris Nooz," as temporary chairman.

George Pfleger, Harshaw Chemical Company, read a group of congratulatory letters received from well-wishers throughout the country. These included a telegram and letter from Dana Chase, editor of *finish*, letters from the editors of "Better Enameling," "The Enamelist," and "Ceramic Industry," and letters from Fowler Manufacturing Company, Ferro Enamel Corporation and the Chicago Enamelers Club.

Copy of a letter written by Dana Chase, former secretary-treasurer of the Chicago Club, to N. R. Klein, president of the Eastern Club, outlining the organization and activities of the Chicago District Enamelers Club was then read to the assembly with a request for comments. During the lively discussion that followed, it evolved that everyone present was vitally interested in keeping all meetings strictly on the business side and with a minimum of distracting entertainment. It was decided to adopt in principle the setup of the Chicago organization in that no constitution or by-laws would be adopted.

First year officers elected

Richards then recognized a motion to proceed with the election of officers. The suggestion to appoint a nominating committee was overruled in favor of electing initial officers for one year, with subsequent elections hingeing on the choice of an appointed nominating committee.

Glen Fulton was nominated for president, the motion seconded, and a motion made that nominations be closed. Voting was unanimous. Fulton objected on the grounds that he was a relative newcomer to the West Coast, but his objection was overruled.

Editor's Note:

This news story covers the formation of another group in "An Unbeatable Team of Organizations" (*see The Finish Line, June, 1946*). We congratulate those who had the foresight to organize "The Westerners," and wish the new club every success in connection with its future plans.

In rapid-fire order, Wally Bauer was elected vice president; Howard Burlingame, of California Metal Enameling Company, secretary and treasurer; and G. E. Pfleger, of Harshaw Chemical Company, assistant secretary and treasurer. Richards then turned the chair over to the newly elected president.

After a short speech of acceptance by each of the newly elected officers, future plans were discussed. In a short talk, Fulton pointed out that the day of "secrets" in the enameling industry was past, and that the primary purpose of the Pacific Coast Enamelers Club would be to present and discuss problems that would be of vital interest to every member. "Everyone here will be called upon to aid in this program," Fulton promised.

The suggestion was made, and favorably received, that all papers to be presented at meetings be mailed out to members prior to the meeting, thus expediting discussion and the solution of any problems involved.

Just prior to adjournment, it was suggested that every member present obligate himself to bring another Western enameler to the next meeting, thus assuring rapid growth of the new organization and wide representation throughout the Southern California area.

Members who attended the initial meeting, and who will thus become Charter Members of the Pacific Coast Enamelers Club, were: Bud Karnis, Gaffers and Sattler; Warren D. Fuller, Gaffers and Sattler; S. G. Thornbury, Turco Products; George C. Schemel, Turco Products; Bruce A. Lahey, O'Keefe & Merritt; Bud Blackburn, California Metal Enameling Co.; H. G. Burlingame, California Metal Enameling Co.; Don Moore, Western Stove Company; Nelson G. Phelps, L. H. Butcher Co.; R. W. Armour, Chemical Process & Engineering Co.; Cyril Clark, Western Stove Co.; H. B. Thomas, L. H. Butcher Co.; H. G. Giraud, Pemco Corporation; Tiny Wareham, Norris Stamping & Mfg. Co.; John B. Miller, Norris Stamping & Mfg. Co.; A. C. Kingsley, Norris Stamping & Mfg. Co.; Glen Fulton, Norris Stamping & Mfg. Co.; Carl Raife, Norris Stamping and Mfg. Co.; Howard L. Richards, Norris Stamping & Mfg. Co.; A. G. Sattler, U. S. Porcelain Enameling Co.; R. R. Sherrill, Ferro Enamel Corp.; Ed Dietterle, Ferro Enamel Corporation; Jim Markert, Ferro Enamel Corp.; Geo. Pfleger, Harshaw Chemical Co.; H. J. Kroesche, Harshaw Chemical Co.; Richard Carno, O'Keefe & Merritt; Walter L. Bauer, Western Stove Co.; Edward P. Kysar, Acme Associates; and B. O. Fresserr, Gaffers & Sattler.

Before adjournment, it was decided to hold the next meeting on July 19. No set decision on subsequent meetings was made but, in general opinion, four meetings a year after the organization is in operation seemed to meet with favor.

The meeting closed with a rising vote of thanks to Fulton, Bauer and Carno for their work in getting the organization started.

PACIFIC COAST ENAMELERS

Upper left: First officers of the Pacific Coast Enamelers Club are Glen Fulton, president; Wally Bauer, vice president; Howard Burlingame, secretary and treasurer; and G. E. Pfleger, assistant secretary and treasurer.

Upper right: H. G. Giraud, Pemco, whispers to Glen Fulton, while George Pfleger, Harshaw Chemical Co., and Jack Miller, Norris Stamping & Mfg. Co., appear more interested in the entertainment.

Center: Newly elected President Glen Fulton takes charge of the meeting.

Lower left: R. W. Armour, of Chemical Process & Engineering Co., adds to the pre-meeting entertainment.

Lower right: An impromptu pre-meeting discussion includes Herb Thomas, L. H. Butcher Co.; Bud Blackburn, California Metal Enameling Co. (back to camera); Richard Carno, O'Keefe & Merritt; George Schemel, Turco Products; and Jack Miller, Norris Stamping & Mfg. Co.

National Electric Sign Association Meeting

design contest winners announced

OFFICERS, directors and committeemen of the NESA met at the Edgewater Beach Hotel, Chicago, on June 28 to review the progress to date as reported by the various committees, and to project plans for the coming months through 1946.

A majority of the officers and directors, chairmen of the different committees, together with many of the members, were present at this well-attended meeting.

Herbert B. Link, The Bellows Company, Akron, Ohio, NESA president, introduced the chairmen of the active committees responsible for the various phases of the Association work.

Advanced training course for key men announced

The Educational Committee, headed by Lewis Carroll, The Lackner Company, Cincinnati, reported arrangements completed for an advanced training course, "Technical Aspects of Neon Signs," for key men in the industry. Committee recommendation was approved to hold this one-week course at the Illinois Institute of Technology, Technology Center, Chicago, August 19-23, 1946, with an enrollment of twenty-five men.

The purpose of this course, sponsored by NESA, is to provide advanced training for supervisory maintenance men, electrical foremen, and others, who by nature of their capacity or ability as key men are capable of acquiring and then imparting additional education to other men, in order to develop better technique and a broader knowledge of the work so as to provide higher caliber craftsmen and better quality work in the industry.

Only men employed by sign manufacturing members of NESA will be eligible to take the course. Developed for, and tailor made to meet the particular needs of electric sign manufacturers, it is expected that this special course will provide much desired training for upgrading the key men in the industry.

Porcelain enamel color standardization

The Electrical Insulation, Porcelain Enamel and Glass Products Committee, headed by W. A. Simpson, Flashtric-Neon, Chicago, having met the day prior, reported progress in consideration of standardization of porcelain enamel colors. The Committee is going to develop some standards of porcelain colors among the several producers, and expects to have recommendations for the Annual Meeting next year.

John U. Aull, Swanson-Nunn Electric Co., Evansville, Indiana, chairman of the Labor Relations Committee, reported that in a meeting of representatives of the International Brotherhood of Electrical Workers and the National Electric Sign Association held in Washington, D. C., April 24, 1946, organization of the Council on Industrial Relations for the Electric Sign Industry was completed. At that meeting provision for election of officers and representatives and the necessary rules and procedures for the Council were established. Mr. Aull brought out the salient provisions and explained the functions of the Council, all of which will be fully covered in a booklet, containing all information regarding the Council, now being printed.

Sign design contest

Announcement of winners of prize awards for designs entered in the NESA Sign Design Contest was made by the judges, and the prize winning designs were displayed.

The contestants were given a typical, two-story, middle-of-the-block store with a 50′ frontage for their problem. First prize, awarded on the basis of originality, advertising and identification value, and practicability of construction, went to John James Bednar, of Bednar and Bednar Studio, South Bend, Indiana.

The winner of the Steuben Trophy, awarded to the *sign company* whose employee rated the highest award in the contest, was the General Outdoor

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Left: Herbert B. Link, The Bellows Company, Akron, Ohio, NESA president, introduced committee chairmen.

Roger C. Hunt, Neon Art Signs, Louisville, Ky., and Stephen L. Smith, new executive secretary of NESA.

J. B. O'Donnell, of Sola Electric, Chicago, and K. C. Johnson, of The Jack Stone Co., Arlington, Va.

Tom Hopkins, Superior Neon Sign Co., Oklahoma City, Oklahoma.

E. J. Schulenburg, Time-O-Matic Company, Danville, Ill., and chairman of the convention and social committee, with Maurice Ely, retiring executive secretary.

Sign design contest winners

First Prize: John James Bednar, Bednar and Bednar Studio, South Bend, Indiana.

Second Prize: Willis E. Longenecker, Goodyear Tire & Rubber Co., Akron, Ohio.

Third Prize: George F. Meyers, *General Outdoor Advertising Co., Chicago, Ill.

Fourth Prize: Dean I. Lemley, American Art Works, Inc., Coshocton, Ohio.

Fifth Prize: Bill Martin, Martin & Company, Sweetwater, Texas.

Sixth Prize: A. R. Fancher, G. C. Kirn Adv. Sign Company, St. Louis, Missouri.

Seventh Prize: J. G. Rosenberg, Cambria Display Studios, Boston, Massachusetts.

Eighth Prize: George L. Thompson, free lance, Cincinnati, Ohio.

Ninth Prize: Jack Harris, Flashtric-Neon, Chicago, Illinois.

* Winner of Steuben Trophy.

The Contest Judges

Paul R. Fritsch, advertising department, Goodyear Tire & Rubber Co., Akron, Ohio; Kenneth Boehnert, art director, Maxon, Inc., Chicago, Illinois; D. R. Swormstedt, vice president, "Signs of the Times," Cincinnati, Ohio; A. C. Barr, electrical engineer, General Electric Co., Cleveland, Ohio; and David Carlson, architect, Holabird and Root, Chicago, Illinois.

Gas appliance manufacturers association

holds 11th annual meeting

A RECORD-BREAKING registration of 235 companies signaled the opening of GAMA's 11th annual meeting held at the Drake Hotel, Chicago, June 11 and 12. Elected to the presidency, succeeding Lyle C. Harvey, The Bryant Heater Co., was West Coast Executive D. P. O'Keefe, president, O'Keefe & Merritt Co., Los Angeles. Other newly elected officers include John A. Robertshaw, president, Robertshaw Thermostat Co., 1st vice president; Frank J. Hoenigmann, executive vice president, Florence Stove Company, 2nd vice president; and John Van Norden, secretary, American Meter Co., treasurer.

Objectives for '46-'47

Retiring president, Lyle C. Harvey, outlined a suggested program for GAMA in the coming year. Considerable work lies ahead in forming specifications, continuing research, and the industry's need for a standard "120-volt, 60-cycle" gas.

Second in his five points was the need for close cooperation between GAMA and the Government to efficiently resolve industry-wide problems.

The gas appliance industry, he pointed out, has too many associations with the attendant duplication of effort and lack of concerted action. Action should be taken to reduce the number to a minimum. "In some instances there are manufacturers who belong to no less than five separate associations," he stated.

Urging closer cooperation with the American Gas Association, Mr. Harvey stressed the importance of the AGA testing laboratories and cautioned members to submit only justifiable complaints in the interest of the whole industry.

His fourth recommendation was for the establishment of a statistical bureau within GAMA headquarters. The collection and compilation of data would equip the executive with a factual basis for decisions and be of assistance when bargaining with labor and dealing with Government agencies.

A request for an industry-wide promotional program was the final recommendation. "The problem today isn't when will appliances be available, but what to do with them when they are available. Promotion is the answer," Mr. Harvey explained.

D. P. O'Keefe, President

It did not matter, he said, if the program be designed geographically sectionalized or appliance-wise sectionalized, but such a program is essential.

GAMA — AGA cooperation

Carrying on the theme of the final recommendation, H. Carl Wolf, managing director, American Gas Association, urged a continued and increased degree of cooperation between the gas utilities and appliance manufacturers. "There exists," he stated, "in the highly competitive period ahead a direct challenge for both of these industries to double and treble promotion and advertising efforts."

While emphasizing that products must be sold on a basis of performance rather than price, he urged that more attention be given to price. "The gas industry and the gas appliance industry must find ways to simplify requirements, through research and ingenuity, to make goods available to customers at the lowest cost consistent with quality and performance, and to increase the willingness of customers to buy high grade merchandise at good prices."

One of the big problems of the gas industry, Mr. Wolf stated, is to lower the costs of distribution, both operating and capital, partially thru the review of engineering standards, devising of new and cheaper materials, and standardization of methods leading to less expensive mains, meters, and appliances. He also advocated a strong dealer promotion program designed to multiply the number of places where customers can purchase gas appliances and equipment.

Distribution's place

In his address, "Distribution in a Machine Economy," George S. Jones, Jr., president of the National Federation of Sales Executives, and vice president of Servel, Inc., took issue with those who judge distribution on a cost basis rather than on the completeness of distribution. Mr. Jones pointed out that in an economy in which the individual produces more goods of higher quality through technological advancement it is inevitable that more men, energy, and money be devoted to the problems of distribution. He cited the example of refrigerator sales 25 years ago when $300, or 60 per cent of the cost, was allocated to distribution, while today the same model retails for $150, with $90, or 60 per cent, taken up by distribution costs.

OPA represented

Gordon Rieley, division director, Building Material and Construction Branch, OPA, and vice president, The Bryant Heater Company, told of the tremendous task being handled by limited staffs working in Washington in good faith with the producers.

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From the Editor's mail . . .

Birmingham Stove & Range Co., Birmingham, Ala.
(Stoves)
"I enjoy reading Finish each month. Thanks."
Noble D. Jones, Supt. of Enameling Plant.

Renown Stove Company, Owosso, Michigan.
(Stoves)
"Finish is helpful to us in keeping abreast of developments in the field of porcelain enameling. We like its contents, the way it is printed and appreciate receiving it."
B. A. Nagelvoort, President.

Consolidated Vultee Aircraft Corp., Nashville Division, Nashville, Tenn.
(Stoves, frostmasters and busses.)
"I enjoy the magazine 'Finish' very much. It is one of my main sources of information on new kinks in the Enamel Industry. I also enjoy the reports of the happenings of the men in the industry whom I have known for some time."
R. B. Evans, Enamel Shop General Foreman.

Florence Stove Company, Kankakee, Illinois.
(Oil and gas stoves.)
"You have the top publication for the ceramic field. Luck to you."
Geo. J. Grimes, Foreman. Porcelain Enamel Dept.

Porcelain Metals Corp., Louisvelle, Ky.
(Enameling and stamping-jobbing.)
"You are doing a splendid job with the magazine Finish. We read it carefully and enjoy it."
P. B. McBride, President.

Michigan College Mining & Technology, Houghton, Mich.
(Technical instruction.)
"Having enjoyed FINISH since its inception, I really would like to offer something constructively for its well being but find it above fault and deserving only of roses. I hope it enjoys years and years of life."
W. B. Gertz, Instructor in Protective Coatings for Metals.

Q. R. S. Neon Company, San Francisco, California.
(Neon signs and lighting.)
"A very excellent publication.We enjoy it very much."
Joe Howard, General Manager.

McBride Sign Company, Pittsburgh, Pa.
(Electric and neon signs.)
"I have always liked your magazine. Its size, quality, paper and printing and, of course, the the subject matter is always interesting."
W. H. McBride, President.

Commerical Fixture Co., Cloquet, Minnesota.
(Refrigerators and display cases.)
"We like and enjoy your publication. Information contained therein is very valuable to manufacturers."
Fred F. Geissler, Owner.

Standard Porcelain Enamel Company, Philadelphia, Pa.
(Jobbing plant.)
"A fine publication. Full of good material. Enjoyed by every foreman in our shop."
Clyde N. Thomas, Vice President and Factory Manager.

Butler Manufacturing Company, Kansas City, Missouri.
(Prefabricated steel buildings.)
"Appreciate receiving your publication in the past, and look forward to receiving same in the future."
W. B. Larkin, Manager, Steel Building Division.

Dearborn Stove Company, Dallas, Texas.
(Stove manufacturers.)
"Thanks for Finish. We expect our porcealin enamel finished line to increase in considerable volume for 1947."
James Teague, General Manager.

Montgomery Ward & Company, Chicago, Illinois.
(Mail order and retail store distribution.)
"An excellent publication full of interesting valuable information. It goes the rounds of the department."
William V. Hill, Supervisor, Plumbing and Heating Division.

Murray Corporation of America, Detroit, Michigan.
(Bath tubs, sinks, stoves, washing machines.)
"Finish is the most complete book ever presented the porcelain industry."
Carl M. Flickinger, Inspector in charge of enameled products.

Federal Electric Company, Inc., Chicago, Illinois.
(Electric signs, fluorescent lighting, etc.)
". . . we deeply appreciate your most commendable efforts in promoting the porcelain industry. We like your publication immensely, look forward to its arrival promptly the first of each month, read it from cover to cover, and especially appreciate your fine photographic reproductions which lend so much to its interest."
Harry H. Brown, Supervisor of Branch Operations.

Automatic Washer Company, Newton, Iowa.
(Washing machines.)
"Enjoy the articles very much. Send to my home address where I can read it in peace and quiet. Thanks."
A. K. Rollins, Purchasing Agent.

O'Keefe & Merritt Company, Los Angeles, California.
(Stoves, refrigerators, heaters.)
"I would like a copy for home and shop use, if possible. My sub-foremen are ardent readers of Finish and I have more time to devote to home reading."
Bruce A. Lahey, Foreman and Control Engineer.

Seeger-Sunbeam Corporation, Evansville, Indiana.
(Refrigerators.)
"I find your magazine very beneficial in its presentation and solving of the problems confronting the porcelain industry."
Kenneth Lutz, Foreman, Porcelain Division.

Government of India (Alfred, New York.)
(Research scholar to the Govt. of India—Enamels.)
"While in India last year, I have seen a few copies of the Finish sent there from our India office in Washington. I have read it with great interest for almost two years now. And now that I am studying the technology of glass, with special reference to high lead borosilicate enamels, I shall be obliged to receive Finish, which will be so helpful to me in my work and ultimately help my country."
Satyapal Varma.

Vitreous Steel Products Co., Nappanee, Indiana
(Table tops, jobbing.)
"'Finish' is doing a swell job 'as is'. Keep up the papers on shop items."
Warren B. Felter, Jr., Control and Development.

George Steere & Sons, Chicago, Illinois.
(Signs and nameplates.)
"We find 'FINISH' very interesting. After I read it from cover to cover, it is given to my brother who takes it to his home and reads it from cover to cover. Both of us are more interested in the technical articles than any other type."
William S. Steere, Co-Partner.

Landers, Frary and Clark, New Britian, Conn.
(Stoves, washing machines, etc.)
"It is sincerely believed that 'Finish' fills a long vacant need for unbiased literature in the porcelain enameling field. Please continue my subscription."
E. H. Rollfs, Cermaic Engineer, Porcelain Enamel Plant.

Norris Stamping & Mfg. Co., Los Angeles, California.
(Refrigerator cabs., washing machine parts and stamping.)
"I like the way 'Finish' is put up and have found the articles reliable."
Karl E. Raife, Sup't, Cabinet Division

Mullins Mfg. Corp., Warren, Ohio
(Steel stamping and enameling of kitchen units)
"We have enjoyed Finish Magazine very much, and believe it is continually improving on very interesting and valuable information.
"You people are doing a very nice job, and your work should benefit the enamel industry."
Harry M. Dowds, Enameling Supt.

Westinghouse Electic Corp., Mansfield, Ohio
(Refrigerators, washing machines, ranges.)
"Like 'Finish' very much. Frank attitude of the editorials please me."
John L. Lannan, Enameling General Foreman.

The Pfaudler Company, Rochester, New York.
(Glass-lines steel tanks.)
"We have enjoyed this publication very much and believe you are turning out an attractive magazine with much worth while information."
Bryan A. Rice, Factory Manager.

Friedman-Alschuler & Sincere, Chicago, Illinois.
(Architects and engineers.)
"I have found FINISH very helpful and advertisers have supplied us with complete information on use of metals in design of buildings."
William F. Shuma, Chief Draftsman.

Milwaukee Public Library, Science and Industry Dept., Milwaukee Wisconsin.
(Technical library service—reference and research.)
"We are very happy to have you continue sending FINISH to the library. It is often called for and used in the department. We have bound the back issues of the magazine and have cataloged and placed them in our permanent periodicals collection."
Milton A. Drescher, Chief of Department.

Geuder-Paeschke & Frey Company, Milwaukee, Wisconsin.
(Kitchen ware and jobbing.)
"'Finish' is my favorite publication for our industry. It is clean, reliable, up to date and informative."
Ivan I. Shroll, Superintendent, Enameling Division.

Brown Stove Works, Inc., Cleveland, Tennessee
(Stove manufacturers.)

"We wish to compliment you on the exceptionally good form and material used in Finish. It contains a wealth of material that is most useful to us in getting started in our enameling operation."

K. H. Brown, Secretary-Treasurer.

Benjamin Electric Mfg. Co., Des Plaines, Illinois.
(Reflectors, tubs, table tops.)

"I would like to have two of my foremen put on your mailing list if possible. I know 'Finish' will be a big help to them in their enameling work. To me 'Finish' is the outstanding magazine for enameling men and should be read by all enamelers.'

Russell Hartwig, General Foreman.

Frigidaire Division, General Motors Corp., Dayton, Ohio.
(Refrigerators, electric ranges, etc.)

"Your magazine is finally answering the need for a trade publication in the porcelain enameling industry. The balance between trade news and articles is fine. Keep it up."

R. S. Sheldon, Ceramist, Materials and Process Engineering.

Army Services Forces, Ordnance Research & Development Center, Aberdeen Proving Ground, Maryland.
(Ordnance research and development.)

"I like your magazine. Its articles have given me considerable assistance in my work."

Seymour J. Barr, Project Engineer.

Midwest Manufacturing Company, Galesburg, Illinois.
(Kitchen cabinets, table tops, sinks, metal cabinets.)

"Thank you for my 1946 subscription to the best publication in the porcelain enameling industry."

L. H. Moos, General Superintendent.

Toledo Porcelain Enameling Product Co., Toledo, Ohio.
(Jobbing)

"You are doing a fine job, Dana. Keep it up."

Earle S. Smith, President and Treasurer.

Wilbur Henry Adams, Erie, Pa.
(Industrial designer.)

"As an industrial designer, and with the importance I attach to porcelain enamel as a medium of expression in the vast field of appearance in industrial and everyday commodities, I value highly such a fine paper as 'Finish.'"

Wilbur Henry Adams.

Hussmann-Ligonier, St. Louis, Missouri.
(Commerical case and reach-in refrigerators.)

"An excellent field publication. In process of changing companies, I missed February Finish. I would appreciate a copy if you can oblige."

M. E. McHardy, Superintendent, Enamel Dept.

Edison General Electric Appliance Co., Chicago, Illinois.
(Home appliances-ranges, etc.)

"Thank you for the 1946 issues of 'Finish.' There is a definite need for your publication in the porcelain enameling field, so I wish you continued success."

Griffin E. Terry, Ceramic Engineer.

GAMA *(Continued from Page 30)*

He explained that suspensions or decontrol of OPA jurisdictions will increase and how an industry can further its request for such action through the government ritual. "The backlog of orders means nothing, but when an industry is up to capacity it is looked upon favorably," he said.

For AGA

Everett J. Boothby, president, AGA, and vice president and general manager, Washington Gas Light Co., further stressed the necessity of close cooperation between the two organizations for progress.

"The best gas we can possibly make would get poor customer acceptance if there were no reliable gas appliances in which it could be burned, and the brightest dreams of your highest paid designers would be but a symbol of brass when used where only unreliable, antiquated, public-be-damned gas service was available," he stated.

As the representative of the 5 billion dollar gas utility industry, Mr. Boothby noted its three outstanding characteristics. "The gas industry is a united industry; it is a modern industry; and it is a programmed industry. The war helped bring about the close unity that now exists and made it necessary that members of the industry, both manufacturers and gas utilities, know what the other fellow is doing. This war cooperation has led to a unity of purpose, of direction and of thinking, that can not be excelled in any industry."

Division meetings

Both afternoons of the two-day session were devoted to divisional meetings. Reports were received from committees assigned special projects; new committees and projects assigned; officers elected; and preparations completed for the ensuing year.

"Show Mr. Antimony to Pup Tent 34, which he will share with Mrs. Titanium and Mr. Zircon."

The Washington round-up

By Wilfrid Redmond

WITH the expiration of OPA, the Government will fight inflation with the weapons at hand. One of the foremost of these is the power to hold down speculative hoarding by means of inventory controls administered by CPA. Another will be limitations imposed on export sales. Both of these regulatory powers are permitted under the Second War Powers Act which Congress extended one year from June 30, 1946, while the nation was concentrating its attention upon price control legislation.

While the price control fight was in progress, John D. Small, Civilian Production Administrator, directed the formulation of an inventory program that would stop the production of excessive quantities of consumer durable goods and other products at the expense of other items needed to balance the economy.

Inventory controls under PR-32 will be used to the limit to prevent speculative hoarding which had such serious results during the inflationary period of the first World War, and during the subsequent depression of the post-war period.

Lead set-aside order

Mr. Small also wasted no time in demonstrating the use of another weapon he will use to prevent inequitable distribution stemming from uncontrolled prices. He ordered a set-aside of 25 per cent of all primary lead production, effective August 1. This set-aside will be made available to manufacturers who are unable to obtain the metal from their regular suppliers. Applications for lead from this pool should be made on Form CPA-95 and should be filed with the CPA Tin, Lead, and Zinc Branch, Washington, D.C., not later than the 20th of the month preceding the month in which shipment is requested.

Manufacturers are permitted a 10 per cent increase in their tin quotas for the third quarter by CPA. At the same time, controls have been established for the first time on secondary tin. The new controls on secondary tin permit the same amount of tin containing metals in manufacturing and processing operations as was used during the corresponding quarter of 1944.

It appears the Government will continue to purchase foreign tin, lead, and copper, and that sales will be made from the Metals Reserve stockpile at current domestic prices. Although all subsidies were dropped with the expiration of OPA, RFC may still make foreign purchases where there is a reasonable expectation that the materials so acquired will not be sold at a loss.

Senator Murray, of Montana, has written John Steelman, new director of OWMR, that legislation to restore subsidies is not necessary. He points out that with the expiration of the Stabilization Act, the Premium Price Plan returns to the status of the years 1942, 1943, and 1944, and that the acting Federal Loan Administrator can again authorize the extension of the plan as was the practice in those years. The premium price plan for the maintenance of marginal mine production was incorporated in the OPA bill and died with it, although the plan itself was approved by both Houses.

Senator Murray made his appeal for an interim premium price plan for copper, lead, and zinc by directive so that supplies could be maintained at maximum levels while Congress was debating the future of OPA. Murray said employment in the marginal mines was falling off and production going down with a consequent critical shortage in store for users of these metals.

Housing to be given preference on steel and pig iron schedules

CPA has announced a plan to channel steel and pig iron into products for the reconversion housing program. Under Direction 12 to the steel preference order M-21, a manufacturer may obtain preferred position on steel mill schedules by certifying with his order that his products are to be used in the housing program. A list of products for which a manufacturer may certify includes steel bathtubs, lavatories and sinks.

Under Direction 13 to the same order, manufacturers who need castings for the Veterans Housing Program may certify with their orders to the foundries that these components are to be used for that purpose. They will also be given preference on foundry schedules and the foundries must apply to CPA for pig iron to be used in the production of these castings. Both actions were made necessary by recent work stoppages in the steel and coal industries. Manufacturers may certify for castings if they are to be used for certain items of plumbing and heating equipment, including bath tubs, sinks and lavatories. The certification plan applies to August and September production. Certifications for delivery in any one month can not exceed 70 per cent of the amount of castings scheduled to be put into production during both August and September.

Sinks, lavatories and closets

Sinks, lavatories, and water closets have been added to the list of building components to which "HH" (Veterans' Preference) ratings apply. The 60 per cent set-aside of bath tubs to fill (HH) orders is expanded, effective July 1, to include these plumbing fixtures.

The June estimate for production of lavatories was 135,000 units with average monthly requirements approximating 175,000 units. Production of sinks for June was estimated at 195,000 units, which is the level of average monthly requirements. Water closet bowls were estimated at 165,000 in June, with average monthly requirements placed at 185,000.

Manufacturers have reported receiving triple A orders to deliver products for the Veterans Re-utilization Housing program — the conversion of military and other housing to civilian dwellings. CPA officials say that a few of these AAA ratings have

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Our Technical Staff and Samples are available to you without obligation. Let us help you with your problems.

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NEWS

McCloskey to head enameling plant at Seeger-Sunbeam, St. Paul

Announcement comes from Seeger-Sunbeam Corporation, St. Paul, of the appointment of Paul F. McCloskey as superintendent of the porcelain enameling plant. McCloskey replaces Max Holscher, who is on indefinite leave due to ill health.

Paul graduated from Penn State in 1935 with a Ceramic Engineering degree. He worked for Frigidaire in Dayton, Ohio, until 1940, when he went to Seeger Refrigerator Company as assistant in the porcelain enameling department. During the war he was made superintendent of the parachute flare plant, and also worked on other war contracts for the company.

With the termination of war business he was put in charge of the paint department, but is now back on what he says is his preferred work — porcelain enamels.

Battelle executive honored

In recognition of his wartime and peacetime contributions to American technology, Clyde Williams, director of Battelle Institute, Columbus, Ohio, was presented the honorary degree of Doctor of Science at recent convocation ceremonies of the University of Utah, at Salt Lake City. Dr. Williams is an alumnus of that university.

The degree was presented by Dr. A. R. Olpin, president of the University of Utah, who cited Dr. Williams' accomplishments in research administration and in directing the activities of the War Metallurgy Committee of the National Academy of Sciences and the National Research Council.

Just a year ago, Dr. Williams was similarly honored by the Case School of Applied Science, in Cleveland, in tribute to his leadership in advancing industrial science.

A. H. Haessler dies

A. H. (Al) Haessler, age 57, well known mid-western representative of the Ferro Enamel Corporation, died suddenly at his home in Joliet, Illinois, on Sunday, June 23, the result of a "stroke" suffered approximately 36 hours previously.

Mr. Haessler's first connection with the ceramic industry was as a worker in his youth in Zanesville, Ohio, potteries. In the early 1920's, he became porcelain enameling superintendent for the Moore Corporation, Joliet, Illinois, leaving in 1926 to become service representative for Ferro.

He was well known to Michigan, Northern Illinois and Wisconsin enamelers and was liked and respected for his sincerity, good humor and willingness to help on manufacturing problems.

New NESA executive secretary

Stephen L. Smith has succeeded Maurice Ely, former executive secretary of the National Electric Sign Association who resigned June 1, 1946.

Prior to joining the NESA staff, Steve Smith served as executive secretary of the Chicago Boiler Manufacturers Association for two years, as executive secretary of the Electro-Platers Institute for three years, and as field secretary and assistant executive secretary of the Chicago Laundry Owners Association for four years. Before entering association work he was engaged in advertising and sales promotional activities for a period of ten years with several national advertisers.

Maury Ely left NESA to enter the manufacturers agency business in the Chicago area. Personal opportunities offered by the new venture, he believed, compelled him to accept the new position, while expressing sincere regrets at leaving the association.

Ginn and Sorby to head G.A.M.A. gas range and "CP" groups

Lloyd C. Ginn, sales promotion manager of the American Stove Company, was elected chairman of the Domestic Range Division of the Gas Appliance Manufacturers Association and E. Carl Sorby, vice president, Geo. D. Roper Corporation, was re-elected chairman of the "CP" Group at a meeting of the Group held in Chicago on June 11. Manufacturers in G.A.M.A.'s Gas Range Division are said to represent more than 70% of the 1941 total domestic gas range production in the United States and Canada.

R. S. Agee, vice president of Roberts & Mander Corporation, was elected vice chairman of the Range Division and A. B. Ritzenthaler, vice president of The Tappan Stove Company, was elected vice chairman of the "CP" Manufacturers Group.

Members of GAMA's Gas Range Division Executive Committee elected

at the meeting are the following:

Frank J. Hoenigmann, executive vice president, Florence Stove Company

John A. Fry, president, Detroit-Michigan Stove Company

Albert M. Kahn, vice president, Estate Stove Company

William M. Hillborn, executive vice president, Cribben & Sexton Company

Robert B. Hurt, vice president, Hardwick Stove Company

M. G. O'Harra, vice president, Norge Division, Borg-Warner Corporation

D. P. O'Keefe, president, O'Keefe & Merritt Company

S. H. Hobson, president, Geo. D. Roper Corporation

W. Frank Roberts, president, Standard Gas Equipment Corporation

Alan P. Tappan, president, Tappan Stove Company

Julius Klein, vice president, Caloric Stove Corporation

J. Warren Slattery, president, J. B. Slattery & Bro., Incorporated.

Elected to the Executive Committee of the "CP" Manufacturers are:

Lloyd C. Ginn, American Stove Company

Henry Honer, Western Stove Company

R. S. Agee, Roberts & Mander Corporation

John Pankow, Detroit-Michigan Stove Company

A. B. Cameron, Grand Home Appliance Company

John E. Bogan, Cribben & Sexton Company

H. C. Erhard, Standard Gas Equipment Corporation

R. B. Hurt, Hardwick Stove Company

D. C. Ferguson, Clare Bros. & Company

Moore Corporation reorganizes executive staff

This finishfoto, taken at the recent Stove Convention (ICHAM meeting), Cincinnati, shows E. K. Priest, former Moore president, with H. T. Worthington, vice president and general manager.

Reorganization of the executive staff of the Moore Corporation, Joliet, Illinois, was announced in July by Conlon Corporation, which purchased the Moore concern several months ago.

The Moore staff as now constituted includes Harry T. Worthington, vice president and general manager; John M. Foxx, vice president in charge of sales; and Orville E. Oesterle, factory superintendent. Bernard J. Hank, head of Conlon, becomes president of Moore and continues as its chairman of the board and treasurer.

Mr. Worthington is a graduate of Dartmouth and the Tuck School of Business Administration and Finance. He was formerly president of Ditto, Inc.; executive vice president and general manager of the Victor Adding Machine Company; and, since 1943 until joining Moore, general manager of Beardsley & Piper Company, foundry equipment manufacturers.

Mr. Foxx has been a member of the board of directors, and vice president and director of manufacturing and sales, for the American Gas Machine Co., Albert Lea, Minn.

Mr. Oesterle becomes Moore factory superintendent following twenty years in the Kankakee, Illinois, works of Florence Stove Company. *(See July, 1946, finish.)*

Included in the report was news of sweeping plant improvements, to be completed within a year, which it is said will quintuple capacity. Eventual production is designed to be ten times peak pre-war capacity.

J. W. Weingartner has been made production control manager of the Brown Instrument Company, Philadelphia, it was announced by Marshall B. Taft, assistant to the president.

Mr. Weingartner has been with this industrial division of Minneapolis-Honeywell Regulator Company for the past 22 years. He will also direct purchasing.

Charles Goodman has taken over the duties of purchasing agent under Weingartner's supervision, and William Lawson has been named assistant production control manager.

Strong Mfg elects officers

At a recent meeting of the Board of Directors, Strong Manufacturing Company, Sebring, Ohio, the following officers were elected: Arthur Morgan, president; William F. Metz, II, vice president and general manager; Fred Shaffer, secretary-treasurer; and W. U. Pfaeffli, chairman of the board.

Breckenridge to Automatic Washer

Appointment of Frank Breckenridge to be vice president and chief engineer of the Automatic Washer Company, Newton, Iowa, is announced by W. Neal Gallagher, president and general manager.

Breckenridge joins Automatic from the International Telephone and Telegraph Corporation, Newark, N.J. He

formerly was section manager of the appliance engineering department of the Westinghouse Electric Corporation, a post he held more than ten years. He is widely known as an engineer in the household appliance field and has been granted many patents on home laundering equipment, most of them pertaining to cycle-type washers.

Automatic's new executive is a member of the engineering committee of the American Washer and Ironer Manufacturers' Association, the American Society of Mechanical Engineers and the American Institute of Electrical Engineers.

Dean Holmes dies

Finish regrets to announce the passing of Dean Major E. Holmes, of the New York State College of Ceramics. He was considered an outstanding leader in the field of ceramics, and will be missed for his contributions to ceramic education.

Conlon enters thermostat field

Purchase of the thermostat division of the Soreng Manufacturing Corp., Chicago, is announced by Bernard J. Hank, president of the Conlon Corporation, Chicago, producer of household washers and ironers.

Conlon will manufacture the thermostats for use in its own products and also as a supplier to various electrical fields.

Harshaw chemist goes to "B" bomb test

In recognition of the services of the Harshaw Chemical Company in producing uranium compounds and other materials used in the production of the atomic bomb, the company was invited to send an observer to the second Bikini bomb test.

President W. J. Harshaw designated K. E. Long, assistant to the president, technical development, as the official observer to represent Harshaw at this test.

Mr. Long received his A.B. in 1925 and his A.M. in 1927 from Western Reserve University, since which time he has been connected with Harshaw in chemical research. During the war he was charged with the responsibility of liaison between the Manhattan project and research, development, and production of the atomic bomb chemicals made by Harshaw. Last October the Army-Navy E flag with four stars attached was awarded Harshaw's Cleveland plant in recognition of its part in the atomic bomb development. Harshaw was one of two in the country to receive the four-star award on the atomic bomb project.

Conlon to build washers and ironers for Western Auto

I. N. Merritt, vice president and general manager of the Conlon Corporation, Chicago, is shown here flanked on his right by Karl Hall and on his left by A. De B. Gaines, of Western Auto. Standing, Roy E. Andree, Conlon general sales manager, left, and Cornie Miller, Western.

The Conlon-Western contract calls for a large minimum unit requirement of "Wizard" washers and ironers, made to Western Auto Supply specifications and to be delivered through a period of years.

New Caloric Stove Corporation

The Caloric Stove Corporation has acquired the entire business and properties of the Caloric Gas Stove Works, large manufacturers of gas appliances. The business was started in 1890 by Samuel Klein.

The Board of Directors of the Caloric Stove Corporation has elected the following officers:

Nathan Klein, president; Julius Klein, vice president; Gustav Klein, treasurer; and David F. Kohler, secretary.

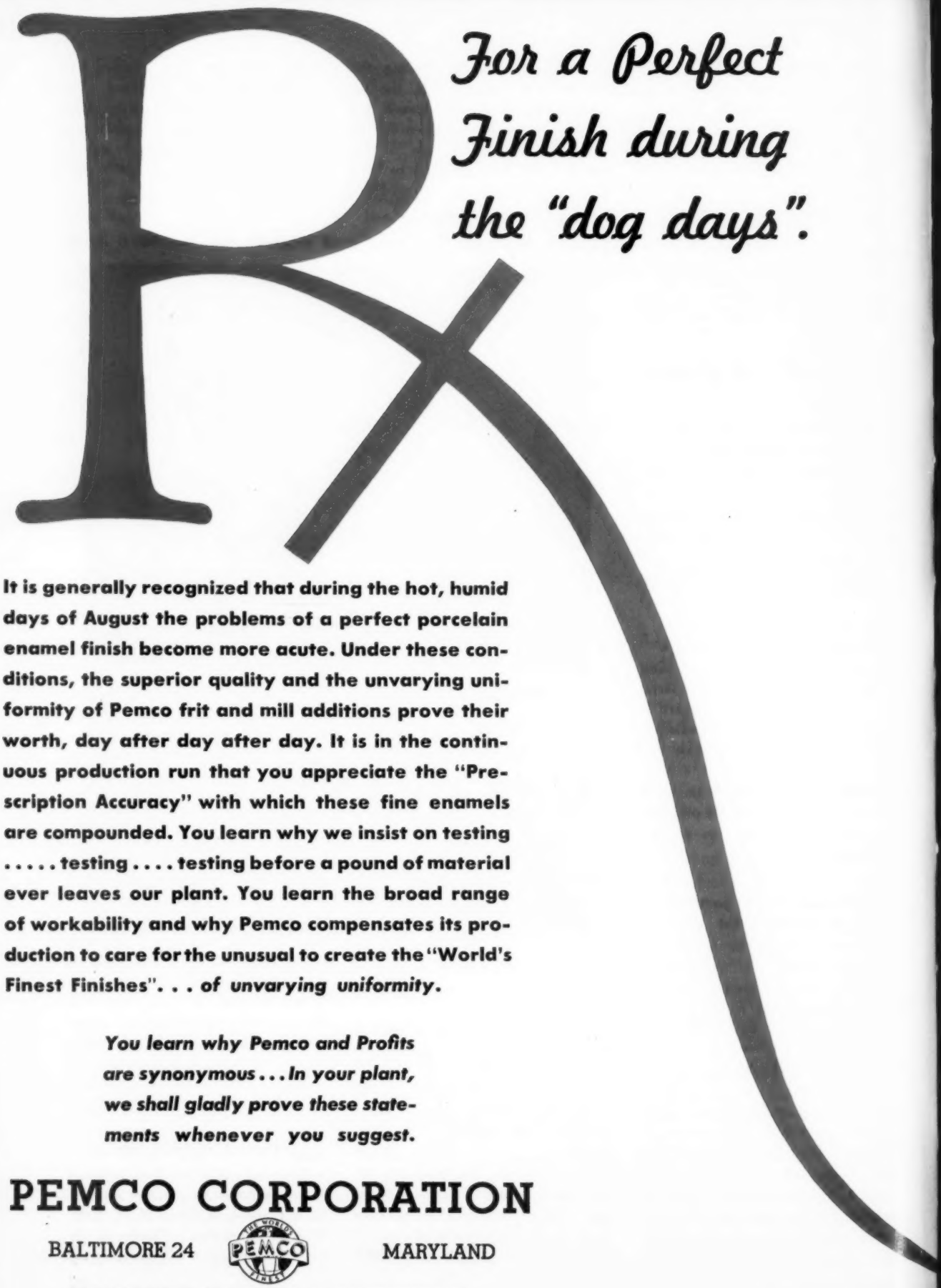
"No change has been made in the executive personnel," Nathan Klein said. "The new corporation will continue the business under long established principles and will carry on production of the full Caloric line of gas ranges."

Headquarters are in the Widener Building, Philadelphia. Caloric's main plant is at Topton, Pennsylvania, where the plant and other properties total 130 acres. A large plant addition recently was completed there. Caloric also has 19 factory warehouses serving all sections of the United States.

Conference and Exhibit

Organization of the First National Instrumentation Conference and Exhibit to be held Sept. 16-20, 1946, William Penn Hotel, Pittsburgh, by

to Page 40 →



Rx For a Perfect Finish during the "dog days".

It is generally recognized that during the hot, humid days of August the problems of a perfect porcelain enamel finish become more acute. Under these conditions, the superior quality and the unvarying uniformity of Pemco frit and mill additions prove their worth, day after day after day. It is in the continuous production run that you appreciate the "Prescription Accuracy" with which these fine enamels are compounded. You learn why we insist on testing . . . . . testing . . . . testing before a pound of material ever leaves our plant. You learn the broad range of workability and why Pemco compensates its production to care for the unusual to create the "World's Finest Finishes". . . *of unvarying uniformity.*

You learn why Pemco and Profits are synonymous . . . In your plant, we shall gladly prove these statements whenever you suggest.

PEMCO CORPORATION

BALTIMORE 24 MARYLAND

"ALWAYS BEGIN WITH A GOOD FINISH"

PEMCO
PEMCO
PEMCO
2139 A
PINT SPECIFICATION
Temprite
120
100
110
80
90
60
70
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50
20
30
0
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Taylor
U.S.A.

→ *from Page 37*

The Instrument Society of America, is now practically complete. Fourteen sessions have been scheduled by The Instrument Society and three sessions have been arranged by the Instruments and Regulators Division, A.S.M.E.

Over ninety leading instrument manufacturers have already engaged space. Attendance will be restricted to holders of special invitations. Invitations may be obtained from the Secretary, Instruments Society of America, 1117 Wolfendale St., Pittsburgh 12, Pa.

Fairless awarded medal for merit

Benjamin S. Fairless, president, United States Steel Corporation, has been awarded the Medal for Merit, highest civilian honor in the power of the president, in recognition of his services as advisor to the Army's Chief of Ordnance on wartime problems of management, production, and supply. The award, accompanied by a presidential citation, was made by Robert Patterson, Secretary of War. General Dwight D. Eisenhower, Chief of Staff, was among high ranking officers and prominent civilian administrators and industrialists attending the ceremony.

New sales manager for Ferro

Glenn A. Hutt has been promoted to the position of general sales manager of Ferro Enamel Corporation, of Cleveland, Ohio, and its Divisions, according to announcement made July 1 by C. D. Clawson, vice president in charge of sales and research of the company.

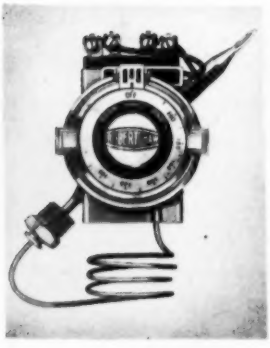
In his new position, Mr. Hutt will have charge of sales-planning, methods and customer contacts for the porcelain enamel frit, color, Vedoc, Allied Engineering and Ceramic Supply Company divisions of Ferro Enamel Corporation.

Through these divisions Ferro supplies porcelain enamel "frit," furnaces, equipment, colors and supplies to manufacturers of porcelain enameled household appliances and other products; colors for the porcelain enamel, plastics and dye fields; synthetic finishes for general industrial uses; glazes, stains, kilns, driers, equipment and refractory specialties for producers of china, pottery, brick and tile and other clay-body products.

Glenn graduated from the Ohio State University in 1930, with the

to Page 42 (Column 3) →

The over-center snap action mechanism, an exclusive Robertshaw feature, is actuated by the expansion and contraction of liquid in the hydraulic assembly. The movement of the diaphragm thus created is concentrated on a snap-lever and becomes greatly magnified. Consequently, the control is very sensitive and responds quickly and accurately to maintain very close differentials. Sturdy and dependable, Robertshaw thermostatic electric controls are used widely by leading manufacturers of electric cooking and heating equipment.



MODEL D1

General purpose, double pole, single throw control. No separate "off" switch needed. Capable of standing loads of 6000 watts, 250 volts.

MODEL C1

With automatic selector switch. Designed to control 2 elements either individually or simultaneously.

Robertshaw models include thermostats for dressing sterilizers, autoclaves, incubators, electric and oil ranges, ovens, water heaters, laundry machines, deep-fat fryers, coffee urns, food carriers, chicken brooders and many other uses.

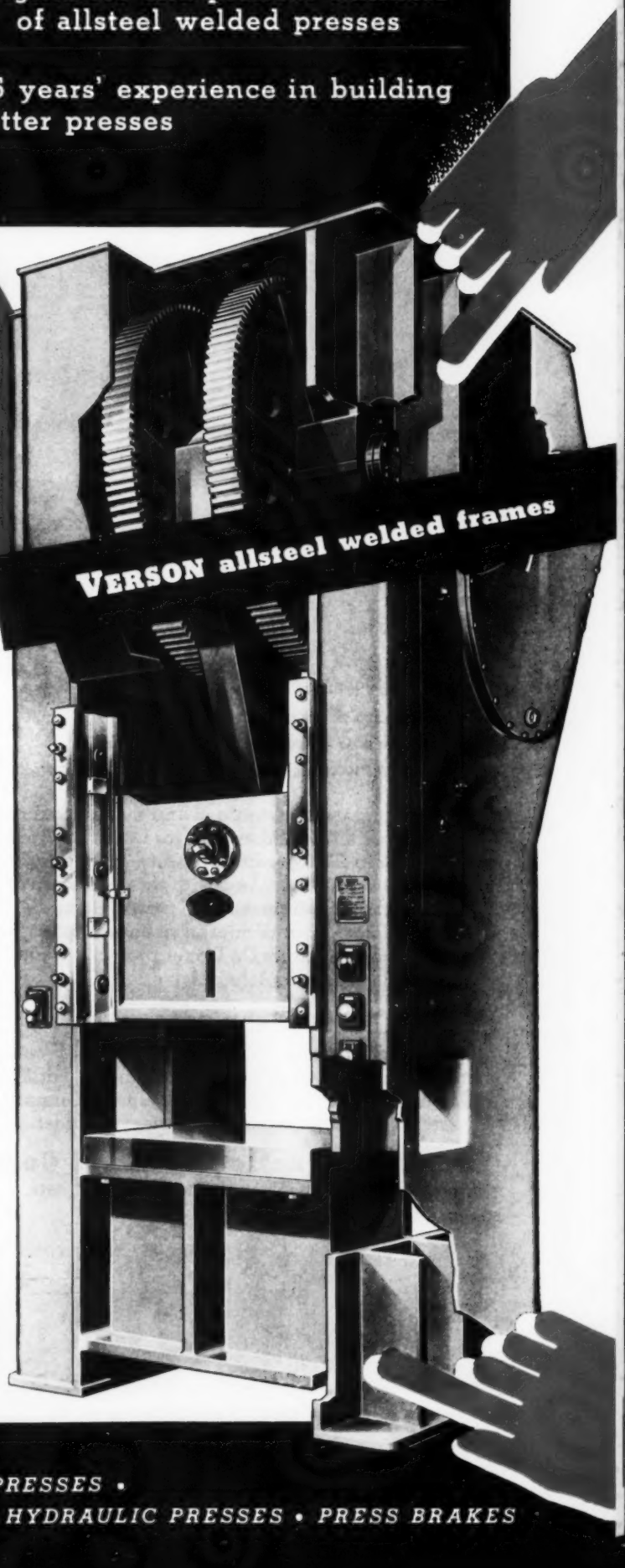
Write for full information about the line and special engineering service.

Originators and pioneer builders of allsteel welded presses

TRADE Verson MARK

25 years' experience in building better presses

features ...that make them better presses



● The design and construction advantages you find in Verson Allsteel Presses are the accumulated results of 25 years' experience concentrated on building better presses. Beginning with the basic structure, Verson originated allsteel welded press frame construction and has, through the years, demonstrated its advantages—time after time.

It is a proven fact that Verson welded frame construction has greater strength and resistance to deflection because of the greater tensile strength and the higher modulus of elasticity of steel plate. Steel plate is a homogeneous material, free of defects. In Verson allsteel frame construction the metal can be placed where strength is needed. Boxtype construction with inner load-carrying plate heavier than outer plate, achieves maximum strength and rigidity.

If your plans for better equipment include presses—remember: it takes experience to build better presses—

Verson has it available for you.

VERSON ALLSTEEL PRESS CO.
9320 So. Kenwood Avenue, Chicago 19, Illinois

POWER PRESSES • FORGING PRESSES •
CLUTCHES • DIE CUSHIONS • HYDRAULIC PRESSES • PRESS BRAKES

20% to 30%
Greater Capacity with the
DINGS DE-IRONER

PLUS THESE ADVANTAGES

- Removes iron particles down to micron size.
- Only one sliding contact in automatic safety valve.
- Coils wound for continuous operation.
- Either open or pressure models available.
- Dings quality in design, construction and operation.

Bigger, longer coil windings and more lineal feet of iron-catching grids are the reasons for Dings De-Ironers having from 20% to 30% greater capacity, size for size, than any other wet separators. And with this added capacity goes additional magnetic strength—powerful enough to remove iron particles down to micron size in slip, frit, glazes and enamel. For maximum De-Ironer protection, specify Dings. Write today for complete data.

FOR DRY SEPARATION

Wherever ceramic materials processing calls for dry magnetic separation, there is a Dings "High Intensity" Separator to fit the job. Ask Dings for information on the best type of separator for your plant application.

Dings Magnetic Separator Company
509 E. Smith St., Milwaukee 7, Wis.

"Separation Headquarters Since 1899"

Dings
"HIGH INTENSITY"

← *from Page 40*

degree of Bachelor of Science in Ceramic Engineering, and thereafter was employed by Frigidaire Division, General Motors Corporation, Dayton, Ohio, for four years as ceramic engineer.

He joined Ferro in 1935. Several months later he moved to Australia and became director for Ferro Enamels, Pty., Sydney, the company's Australian subsidiary. Following his return to the United States in 1940 he was appointed assistant general sales manager of the Ferro corporation and its divisions.

In 1942 he joined the U. S. Army, as 1st Lieutenant in the Chemical Warfare Service, was promoted to Captain in 1942, and was discharged in 1945.

New Chicago Vit service engineer

Harry J. Van Dolah was recently promoted to the position of service engineer for Chicago Vitreous Enamel Product Company, according to an announcement made by F. L. Meacham, manager, sales and service.

Harry received his B.S. degree in Chemistry at Indiana University in 1937 and his M.S. degree at the University of Detroit in 1939, the latter by means of a teaching fellowship. During 1939 and 1940 he worked on a Doctorate degree at Purdue University. "Since coming with the company in June, 1940, Harry's work has been for the most part in research development. He has, in addition, had a good deal of experience in process control, chemical laboratory work and frit development," stated Mr. Meacham.

Harry will make his headquarters in Indianapolis, Indiana, his former home.

Three courses for industrial finishers at DeVilbiss school

The DeVilbiss Company, Toledo, Ohio, has reserved three one-week courses in the second half of its 1946 School of Spray Painting for industrial finishers. Starting date for the first course was July 15. Dates for the second and third courses will be

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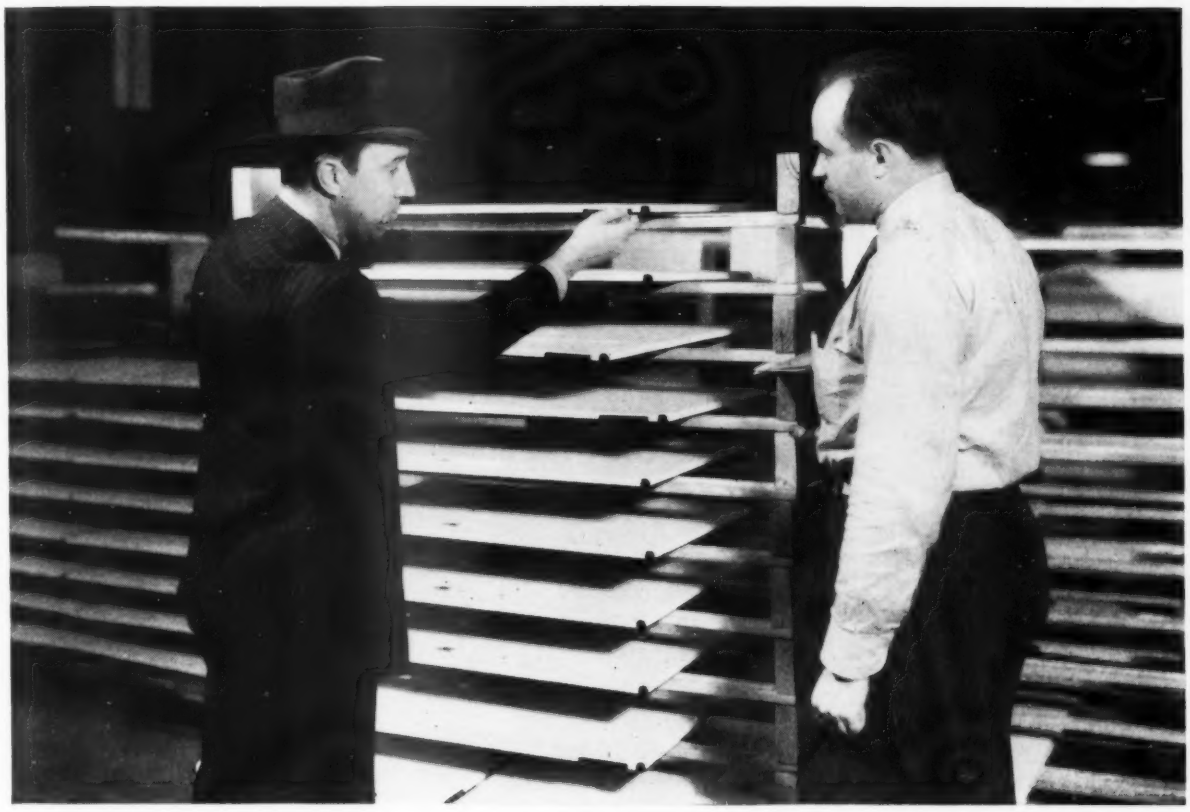


NO WAVES—NO WARP—NO TWIST

—when you use Toncan Enameling Iron for flat panels!

No matter how many times you fire table tops, signs, refrigerator sections or other flat panels, *they'll stay flat*—if they're made from Toncan Enameling Iron.

When specially processed for flat work, Toncan Enameling Iron ends warping, sagging and twisting troubles. Panels made from it hold their size and shape—are easy to assemble—cut costs—step up quality.

But there's more to the story. If your interest is in washing machine tubs or some similar product, Toncan Enameling Iron can be processed to take your deepest draws without cracking or wrinkling.

Or if you need a combination of non-sagging and deep drawing qualities, it can be produced to your specifications.

Yes, and Toncan Enameling Iron welds readily and easily without any effect upon its fine enameling qualities.

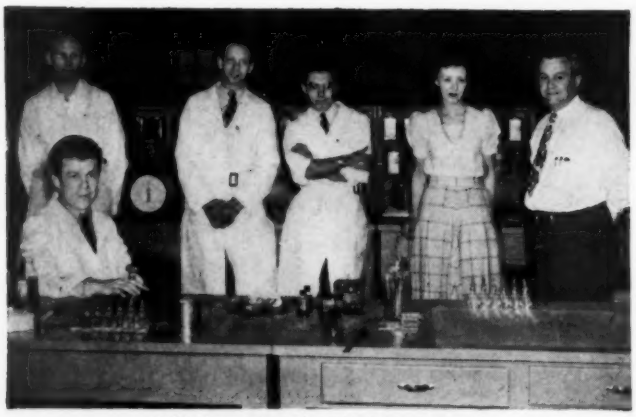
Republic metallurgists are ready to discuss your individual problems whenever you're ready to talk to them. Just name the day.

REPUBLIC STEEL CORPORATION
GENERAL OFFICES • CLEVELAND 1, OHIO
Export Department: Chrysler Building, New York 17, N. Y.

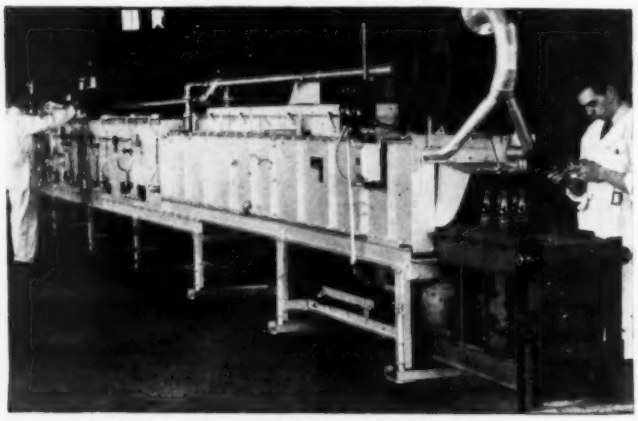
Republic

TONCAN ENAMELING IRON
Reg. U. S. Pat. Off.

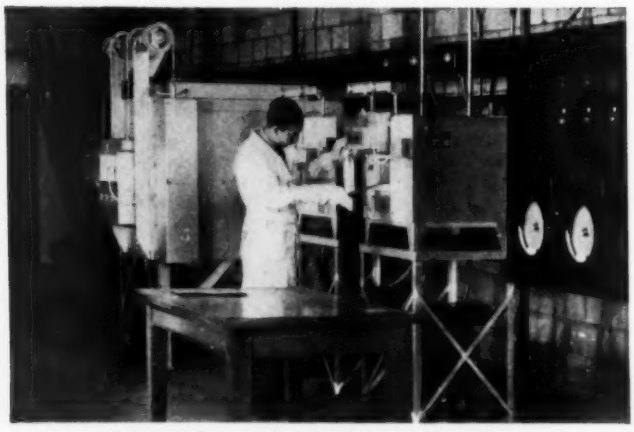
DU PONT OPENS NEW CERAMICS SERVICE LABORATORY



Staff of new Columbus, O., laboratory with Mr. O. T. Fraser, supervisor, at the right.



Putting test samples through a glass decorating lehr.



Automatically controlled electric furnaces for all types of high temperature color testing.

For complete, speedier service to firms in Midwest and West

In order to give more efficient service to plants in the Midwest or West, the Du Pont Company has opened a new Color Service Laboratory at 490 West Goodale St. in Columbus, Ohio. A thoroughly trained technical staff in this laboratory will help you solve your ceramics problems. The staff is headed by Mr. O. T. Fraser, who has 20 years of experience in the production and servicing of ceramic colors.

The most modern equipment has been installed. A small-size glaze decorating lehr has been built completely to scale to duplicate the performance of glaze colors in full-size production lehrs. The equipment also includes a battery of automatically controlled heavy duty electric furnaces for high temperature work with glaze stains, underglaze colors, etc.

Our friends are cordially invited to visit this new laboratory in Columbus.

Eastern customers in the New York, Boston and Philadelphia areas will continue to be served by the Du Pont Ceramics Laboratory at Perth Amboy, N. J.

Wherever your plant is located, remember: your ceramics problems will receive prompt attention if you submit them to Du Pont! For further information on Du Pont's expanded ceramics laboratory service, just write to E. I. du Pont de Nemours & Co. (Inc.), Electrochemicals Dept., Wilmington 98, Delaware.

DU PONT

COLORS *and* DECORATIONS

***for* CERAMICS *and* GLASS**

DU PONT

REG. U.S. PAT. OFF.

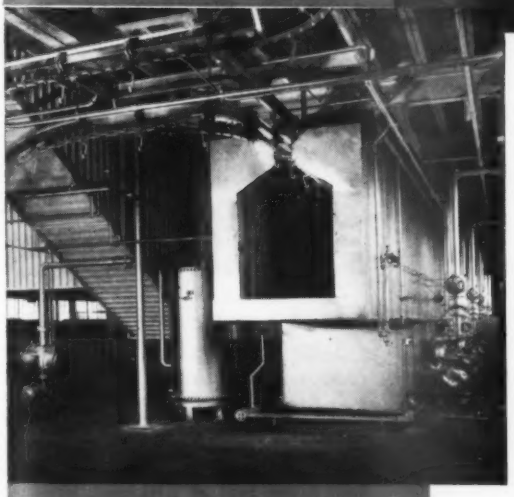
BETTER THINGS FOR BETTER LIVING

...THROUGH CHEMISTRY

COMPLETE *Finishing* SYSTEMS

for ENAMEL • LACQUER • PAINT

Above: Mahon Hydro-Filter Spray Booths—Part of the Acme Installation. At Right: Enclosed Spray Room which houses all Painting Operations in the same Installation. Note Plate Glass Windows.



Metal Cleaning and Rust-Proofing Equipment—Part of the Acme Installation. Note the Enclosed Spray Room at the left and the Up-Tunnel to the Baking Oven overhead. Compactness in design Saves much Valuable Manufacturing Floor Space.

. . . Planned, Built, Installed, to Meet YOUR Specific Requirements

Illustrated on this page is another Complete Finishing System—the third to be furnished by Mahon for three different plants of the Acme Metal Products Corporation . . . further evidence of the complete confidence with which manufacturers turn their entire finishing problem over to Mahon. You, too, may draw on the vast experience of the Mahon organization in this highly specialized field—experience covering hundreds of installations in many diversified industries all over the world. If you have a finishing problem in your plant today, or are contemplating new finishing equipment, call in Mahon engineers—they bring to you a wealth of technical knowledge and practical know-how not available to you elsewhere.

Address INDUSTRIAL EQUIPMENT DIVISION

THE R. C. MAHON COMPANY

HOME OFFICE and PLANT, Detroit 11, Mich. • WESTERN SALES DIVISION, Chicago 4, Ill.

Engineers and Manufacturers of Complete Finishing Systems including: Metal Cleaning Machines, Rust-Proofing Machines, Dry-off Ovens, Hydro-Filter Spray Booths, Filtered Air Supply Units, and Drying and Baking Ovens. Also Paint Reclaiming Units, Hydro-Foam Dust Collectors, and many other Units of Production Equipment.

MAHON

Industry News and Personals *(Continued from Page 42)*

September 16 and November 4, with all sessions covering the same classroom instruction and shop work.

Courses are free to users of DeVilbiss Spray Equipment, who are requested to write for reservations.

Charles R. Reeves has been appointed works manager of Kalamazoo Stove & Furnace Company, Kalamazoo, Michigan, according to a recent announcement by A. L. Blakeslee, president.

Control man at Seeger-Sunbeam

Harold J. Vikingstad is the new control man in the porcelain enamel department, Seeger-Sunbeam Corporation, St. Paul, Minn. Formerly he served with the Federal Cartridge Company where he received Government recognition for originating devices for canning sensitive powder and for screening powder of several granulations, in addition to revising production layout. Vikingstad is an alumnus of the University of Minnesota and a member of the Engineers Club of Minneapolis.

Alfred University to select new Dean of Ceramics

Following the recent death of Dean Major E. Holmes, New York State College of Ceramics, specifications have been sent from the University to fellows of the American Ceramic Society and members of the Ceramic Association of New York, Board of Trustees of Alfred University, Board of Managers of the Ceramic College, and the faculty, for suggestions. Selection will be made from one of the following four classifications: (1) the present faculty, (2) the Alfred Alumni of the Ceramic College who have attained distinction, (3) the educational leaders in other universities, or (4) those in the ceramic industry in New York and the United States who have shown outstanding ability.

When all recommendations have been received by the University, they will be tabulated and recommendations made to the Board of Managers and Board of Trustees for final approval, according to J. E. Walters, president of the University.

Tuttle & Kift, Inc., buys new plant

Tuttle and Kift, Inc., Chicago manufacturers of surface heating units for electric ranges, switches, controls and gas range valves, has purchased the recently built, government-operated hemp mill at Kirkland, Illinois, from the War Assets Administration, according to an announcement by W. R. Tuttle, president and general manager.

The entire electric switch and gas valve manufacturing departments are being moved to the newly acquired Kirkland plant, which contains 28,000 square feet of floor space. Operation of the plant began in mid-July. Mr. Tuttle predicts that the addition of new manufacturing facilities will

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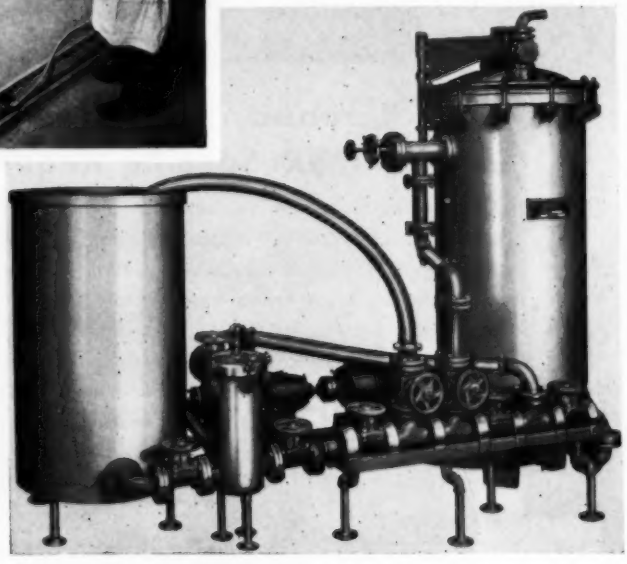
SALT FOG EQUIPMENT FOR YOUR LABORATORY

PRESSURE FILTERS FOR YOUR PLANT

Salt fog corrosion test equipment in the physical testing section of the new Benjamin Electric Mfg. Co. laboratory, Des Plaines, Ill. Industrial Filter salt fog equipment was indispensable for wartime testing—it will do an equally important peacetime job.



Typical Industrial Filter as used in the pickle rooms of modern porcelain enameling plants.

Save time, save money, and keep your new pickle room at top efficiency. Include Industrial pressure Filters in your plans for a modern plant. Send for specifications on a unit to meet your requirements for a dependable clarification and purifying system.

Made in a range of sizes and capacities, both portable and stationary, they offer the convenient and labor saving method of filtering nickel or neutralizer solutions.

Automatic Filter powder feeders, special alloy pumps, Filter cloth and Filter Aids

INDUSTRIAL FILTER & PUMP MFG. CO.

1621 WEST CARROLL AVENUE • CHICAGO 12, ILLINOIS

It's what is UNDER the cover that counts

"DON'T JUDGE a book by its cover" can logically be paraphrased to read "Don't judge a finish by its surface appearance." Century cover coats have surface appearance and durability, but any porcelain enamel finish must have the right ground coat to insure lasting durability.

"Start right from the steel out" is more than a slogan — it represents a policy and belief at Century that without a good, easy-working, trouble-free ground coat with good adherence or "Grip" no finish can give trouble-free service for the life of the product.

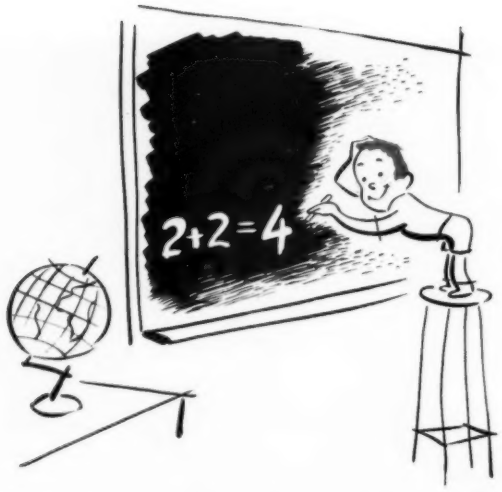
Check with any user of Century ground coat enamel and you will find them enthusiastic. The millions of pounds of Century ground coat frit that are used every year by our customers give extra assurance of trouble-free finishes, both in the shop and on the finished product.

If you haven't tried this economical, trouble-free enamel, contact us and we'll see that you have the opportunity.

FRIT from CENTURY

FRIT MASTERS

CENTURY VITREOUS ENAMEL COMPANY, 6641-61 S. Narragansett Ave., Chicago 38, Ill.



HOW TO SOLVE YOUR COLOR PROBLEMS FASTER

THE JOB of working out porcelain enamel color problems in your own plant takes hours and effort that cost you money. It cuts into time you need for product research and development.

So take a tip. Let Drakenfeld solve your color problems. Once we know the frit you use, the color result you want, and the production procedure you follow, our technologists go to work. As specialists in producing porcelain enamel colors to meet individual requirements, our men are well equipped to find the right answer for you.

If it is matching a color or developing a new formula, you can depend on Drakenfeld to "take-over" in a way that saves you money. For our experience in producing porcelain enamel colors for architectural purposes, industrial products, signs, and household, institutional and professional utensils dates back many years.

Let us tell you all about our service — how it can help you cut production costs. Write today.

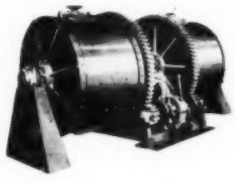
DEPENDABLE SERVICE ON: Screening Paste . . . Graining Colors . . . Squeegee Oils and Mediums . . . Spraying and Banding Mediums . . . Chemicals . . . Rotospray Sifters . . . Steveco Mills . . . Porcelain Grinding Balls . . . Porcelain Mill Linings

If It Flows ROTOSPRAY Can Strain It!

Saves time and labor. Strains through a vertical screen — no clogging. Long-life screen often saves enough to pay for the equipment. Standard and Junior sizes. May be suspended or placed on floor. Capacity ranges from 300 to 1000 gallons per hour, depending on the nature and specific gravity of the product, screen mesh and size of sifter. Descriptive folder sent on request.

5 SAVINGS WITH STEVECO MILLS

Time
Labor
Horsepower
Floor Space
Initial Costs



Steveco high-efficiency duplex mills wet-grind porcelain enamel materials better, faster, and at low cost. Many outstanding construction features proved in hard day-after-day service in many plants. Wide range of sizes and linings, with all types of drives. Write for catalog, then let us study your grinding needs and recommend the correct type for your requirements.

YOUR PARTNER IN SOLVING COLOR PROBLEMS

B. F. DRAKENFELD & Co., Inc. 45-47 Park Place, New York 7, N. Y.

Factory and Laboratories: Washington, Pa.

Pacific Coast Agents: Braun Corp., Los Angeles 21 . . . Braun-Knecht-Heimann Co., San Francisco 19

We built a laboratory to meet our future needs

(Continued from Page 15)

per second, and is then decreased to 10 cycles per second. The automatic cycle can be repeated once per minute indefinitely.

The photometric laboratory

The Benjamin Photometric Laboratory is 70 feet in length, 20 feet in width and 22 feet in height, with doors at the end which make it possible (at night) to extend the distance required for the testing of searchlights and other high candlepower equipment. The floor is inlaid with fine aluminum strips in 12 inch squares to facilitate locating test points for illumination measurements of lighting units mounted on the high ceiling of the room.

This modern photometric laboratory is the central feature of the new laboratory. A 22′ ceiling height and horizontal test distance of 72′ can be used in this black-walled room.

The acoustical laboratory

This room, with its non-resonant or sound absorbing walls and ceiling and double lead-lined doors, provides the necessary facilities for measuring sound frequencies and analyzing sound of Motor Driven Signals, Sirens, Howlers and Industrial Buzzers manufactured and sold by the company. Complex sounds emitted from the devices are picked up by a microphone and transferred from the room to an exterior test bench on which are placed the Oscilograph, Sound Level Instrument, Sound Analyzer, Ammeters, Voltmeters and other test instruments.

Model shop

In this shop, skilled model makers using a wide array of precision tools fabricate models from the designs produced by the equipment designers of the Engineering Department. This permits new designs to be visualized and tested for illumination and electrical characteristics and performance. Natural illumination combined with Benjamin fluorescent lighting units, with porcelain enameled reflectors, provides 100 footcandles of glareless illumination at the working plane, day or night.

Conference room

This air-conditioned room provides needed facilities for engineering and sales meetings, foremen's meetings and other group conferences. In addition to the internal meetings, it is also planned to utilize it for training courses and group discussions on lighting and related subjects to be conducted by the company during the fall and winter months.

Reception room

In the new laboratory building is a Reception Room where all visitors to the plant and general offices are received and directed to the respective offices. In the corridor leading from the Reception Room into the laboratory sections of the new building there are a series of wall cases in which various products of the company are on display.

All fluorescent and incandescent lighting units used in the building are standard or specially designed units produced by the company.

Heating of the building is of the radiant type with hot water circulated through welded wrought iron pipe buried in the floor slab or suspended above the ceiling.

Testing finishes for lighting equipment

It will be clear to the readers that facilities are provided in the new laboratory to test all parts and functions of lighting equipment and allied products. We do consider that one of the important functions of the laboratory will be the testing and standardization of finishes for our equipment. To the experienced enameler it will be clear that many of the tests run will have to do with finishes other than porcelain enamel. for some of the tests provided would have little or no effect on a properly enameled part. This work will never-

to Page 52 →

Overfire jets for smoke abatement

→ *from Page 20*

nozzle attached to a steam hose. Careful observations should be made of the relative decrease in smokiness above the fuel bed in different locations, as the stream penetrates and mixes with the furnace gases. This information will help to reveal the furnace wall and approximate elevation where the jets will prove most beneficial in smoke elimination.

Jets adjacent to furnace walls should be not less than one space from the wall. This is very important in order to prevent the air-stream from scrubbing and eroding the refractory. Although maximum mixing is accomplished with jets pointed downward, the angularity should not cause stream impingement on the fuel bed. This might cause clinkering and fuel bed matting. Safety on this point covers locating the jet one spacing above the normal level of the fuel bed and aimed at a point on the opposite wall 6 inches above the fuel bed level.

Typical jet locations

Typical jet location now in service on successfully operated furnaces will be cited. It is hoped this information will serve to stimulate thought on those factors influencing jet location.

With traveling grate stokers, jets are frequently placed in the rear wall. The jet stream then forces the lean gas strata toward the front of the furnace where rich hydrocarbon gases are rising. Other schools of thought favor jet location in the front wall in order to realize maximum turbulence where the rich gases are distilled from the fuel bed.

Single retort stokers usually perform with comparatively little smoke. When jets are used, they should be placed in the front or rear walls. The jets should be set to concentrate air and turbulence mainly over the center or retort portion of the furnace grate area. There should be little need for air along the side walls as little hydrocarbon should be ris-

to Page 52 →

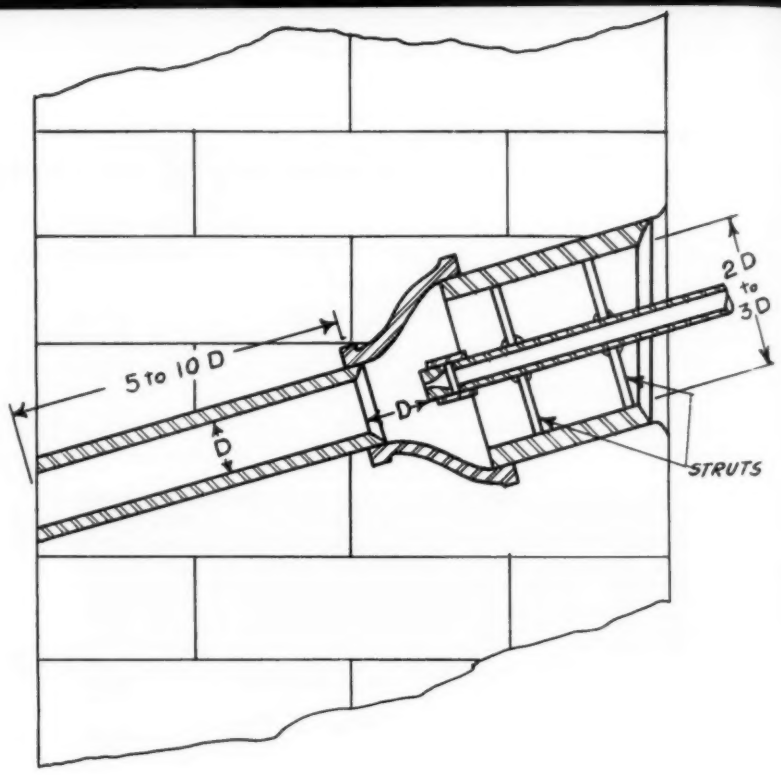


FIGURE 10. METHOD FOR DIRECTING AIR TO STEAM JET INLET WHEN THE BEST LENGTH OF AIR TUBE IS CONSIDERABLY LESS THAN THE THICKNESS OF FURNACE WALL.

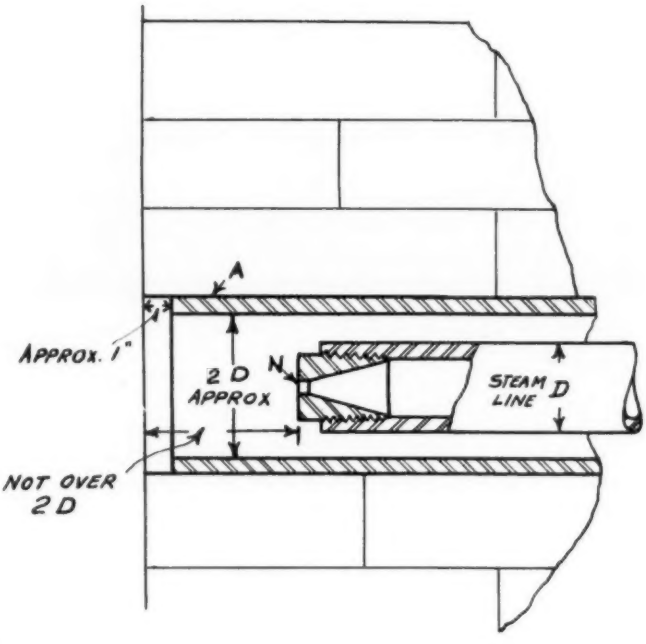
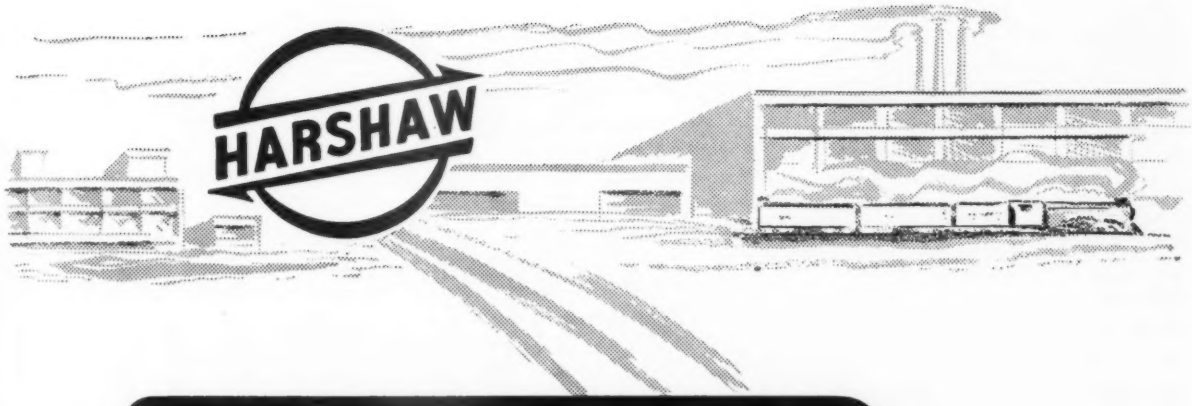


FIGURE 11. STEAM JET FOR TURBULENCE ALONE, NO AIR ENTRAINED.

A - Air tube. Size not critical. Twice diameter of steam line should be ample to permit flow of sufficient air to cool nozzle.

N - Nozzle can be made of pipe plug, counter bored or drilled, screwed into internal pipe thread or into coupling. Pipe cap can be used but scale accumulation may be encountered. Nozzle need not be accurately centered and should be no more than one air tube diameter back of wall outlet.



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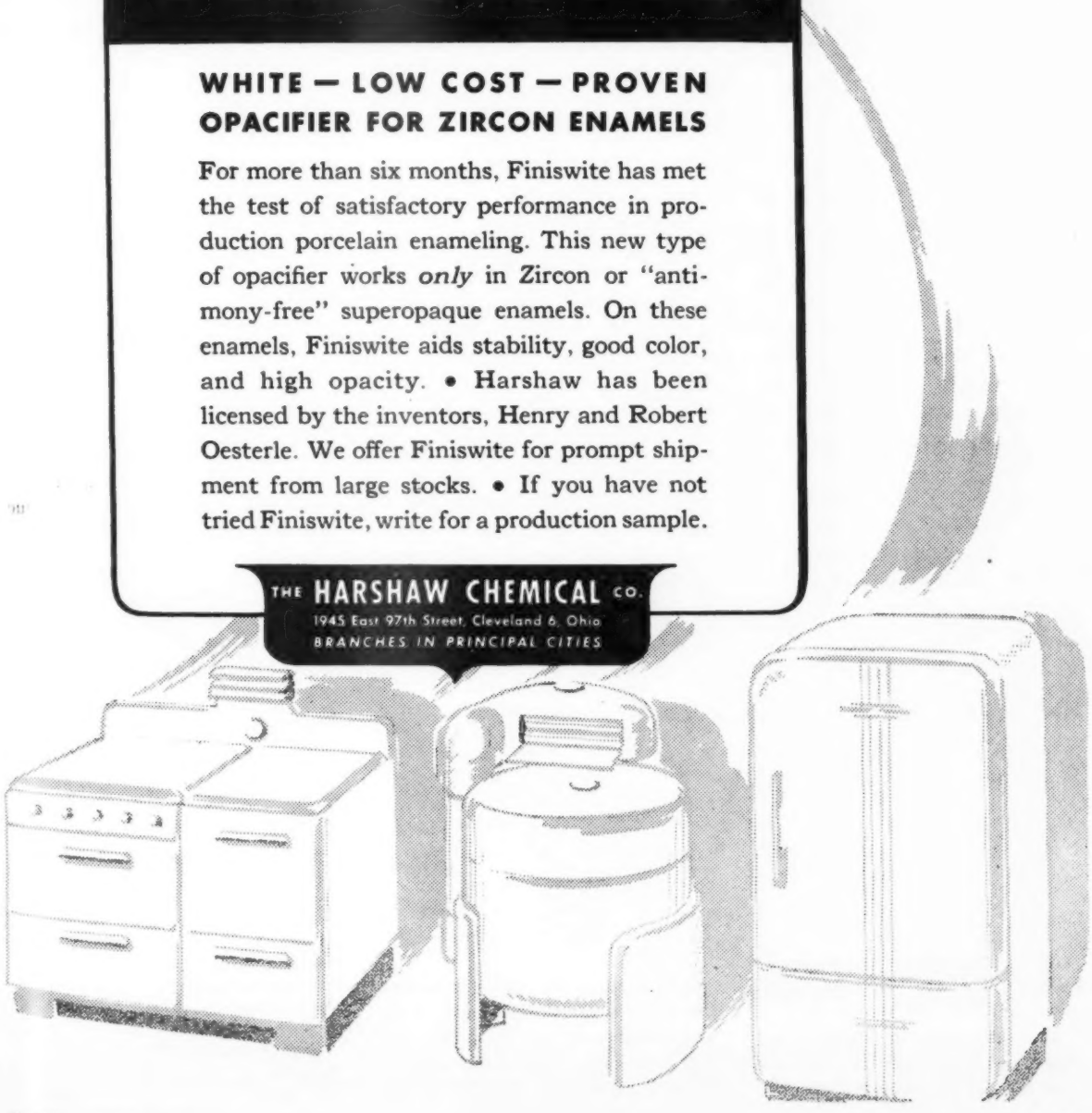

→ *from Page 50*

ing from these sections when this type of stoker is operated properly.

Jets, when used with multiple retort stokers, are generally located in the front wall. This location provides air and turbulence where the gases are rising from the characteristic hump on this type of stoker.

In the case of spreader stokers front, back and sidewall location of jets is being employed. Jet velocities within the limits specified herein do not appear to materially influence coal distribution over the grate. The jets should be located about 16 to 24 inches above the grate, depending upon grate size, size and characteristics of the coal burned and average load conditions.

Although the above jet locations are being used successfully on many jobs, they should not be accepted as a firm pattern. There are too many variable factors existing between different furnaces. The only safe basis for decision is a thorough study of the furnace conditions for each and every contemplated installation.

Adequate provision for observing stack emission is necessary in order that the attendant may know when to operate the jets. If the jets are operated unnecessarily, they are wasting costly steam. Suggested means for helping the attendant include use of the photoelectric cell or periscope. The photoelectric cell receives light through the stack gases and actuates the jets. It can also convey the news to the boiler room attendant through a bell or light signal. When a periscope is used, it should be located in the boiler room, adjacent to the furnace.

In conclusion, it should be clearly understood that overfire jets are not a "cure all." The need for careful, intelligent operation still exists and properly maintained firing equipment is just as essential. Jets are an added tool to help the furnace attendant in smoke abatement.

References

Technical papers covering the results of research work conducted by Battelle Memorial Institute under the sponsorship of Bituminous Coal Research, Inc., appeared in the TRANSACTIONS of the American Society of Mechanical Engineers, October, 1943; COMBUSTION, March, 1944, and Technical Report No. 7, "Application of Overfire Air Jets," by Bituminous Coal Research, Inc.

We built a laboratory . . .

(Continued from Page 49)

theless be important in the overall picture for correlation and comparison purposes, and our laboratory will cooperate closely with our Ceramic Engineering Department in connection with the development program in the solution of production problems.

As was indicated earlier, Benjamin is one of the oldest producers of porcelain enameled products, and we see far greater possibilities in the future for extending the use of this material with its high-reflecting and practically everlasting qualities. We expect to make use of all technological improvements in the enameling industry for the ultimate improvement of our own product.

The Washington round-up

(Continued from Page 33)

been issued, but that a new preference rating is in preparation which will give the re-utilization projects the edge over HH ratings because of the urgency deadline on their construction. The Government expects to have 200,000 of these units ready by fall.

The trend of current production is indicated in latest output figures reported by CPA (for May).

May shipments of washing machines increased slightly to 184,000 from the April level of 177,000.

Domestic mechanical refrigerators reached 196,000 units from the April level of 143,000.

May shipments of electric ranges remained at about the same level as in April — 31,000 units.

Gas range production declined in May to 139,000 units from 152,000 in April.

There may be some immediate shortages in chemicals because of the accumulative effects of strikes, new cost price adjustments, diversions to black markets, and shortages of raw materials. Some plants face shutdowns. Shortages may be felt over an extended period until pipelines are built up.

Final figures on June production of fractional horsepower motors are expected to show a decline because of increased shortages of materials, particularly silicon sheet steel and copper magnet wire. CPA has recommended that RFC release 25,000 tons of copper, mostly in wire bars, from the Metals Reserve stockpile to take care of urgently needed production. Some electrical manufacturers reported the necessity of closing down for the first two weeks in July because of wire shortages.

Zinc, which until recently was in balanced supply, now threatens to join the company of other short materials. Strikes and labor shortages are the causes. Imports have also decreased because of the higher price of foreign zinc. There is no public purchase program for zinc, and domestic supplies are insufficient. CPA has no orders for controlling the use of zinc. To assist industry, it has been necessary to draw upon Government stockpiles but, at the current rate of depletion, the two high grades will be exhausted in a few months. Reinstatement of controls is not contemplated but unless some means is found to revive importation of zinc, the supply position will continue critical.

The Department of Commerce reported a decline in the value of shipments of porcelain enameled products for May. Shipments in May amounted to $5.8 million, compared with $6.2 million shipped in April. Shipments of cooking, household, and hospital utensils accounted for more than $2.2 million of the May total.

The value of May shipments by products were:

	May
Signs	$ 296,787
Stove Parts	515,501
Refrigerator Parts	419,024
Reflectors	295,448
Cooking, hospital and household utensils	2,249,764
Table Tops	491,572
Store fronts and other architectural parts	85,870
Washing machine parts	478,583
All other	944,575

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enable all departments, in both Chicago and Kirkland, to show marked increases in production by early autumn.

Eastern Enamelers Club appoints coordinating committee members

Announcement was made recently of the appointment of R. R. Danielson, Metal & Thermit Corp., and Dr. G. H. Spencer-Strong, Pemco Corporation, to represent the Eastern Enamelers Club on the Coordinating Committee of the Enamelers Clubs (see June, 1946, *finish*). The first meeting of the Coordinating Committee will be held during the P.E.I. Forum at the University of Illinois, October 9 to 11.

Norge promotes Howard Clary

The appointment of Howard L. Clary as general sales manager of Norge Division, Borg-Warner Corp., was announced by M. G. O'Harra, vice president and director of sales. Clary's latest appointment is one of several promotions following his resignation from the WPB a year ago. He has been in the appliance business since 1927 and with Norge since 1929, with the exception of three years as a WPB executive.

The largest single month's output of electronic and other industrial instruments in its history is reported for May by the Brown Instrument Company, Philadelphia division of Minneapolis-Honeywell Regulator Company.

The Detrex Corporation has completed its move to a new, modern, main plant and office at 14331 Woodrow Wilson, Detroit, Mich.

NESA meeting *(Continued from Page 28)*

Advertising Company, Chicago. Creator of the trophy-winning design was third prize winner, George F. Meyers, whose sign design work is well known to the sign industry.

E. J. Schulenburg, Time-O-Matic Company, Danville, Illinois, chairman of the Convention and Social Committee, reported a recommendation which was approved to hold a 1947 NESA convention and exhibit at the time of the annual meeting in Chicago during the first week of February, announcement of dates to be made later by the committee.

The Maintenance and Repair Service Committee, headed by Milton M. Kraus, Broadway Maintenance Corp., Long Island City, N.Y., reported a suggested uniform maintenance contract. Recommendation was approved that this uniform type maintenance contract be further developed by the committee and then sent to members for their consideration and recommendations.

Chairmen of the several other committees reported excellent progress being made in their activities, and told of the continuing efforts being made to accomplish their programs during this year.

Standardize

your enamel slips with ILLCO-WAY de-ionized water

Leading ceramic plants are using De-ionized Water in the make-up of enamel slips, thus introducing one more uniform ingredient. Dissolved mineral impurities in all natural waters affect the flocculation characteristics of frit and clay suspensions. *De-ionization* removes the undesirable salts in the make-up water. When De-ionized Water is used in the mill room, *uniformity* of "set" of enamel slip is safeguarded.

Mineral-free water is yours with an ILLCO-WAY Deionizing Unit. It will produce all the pure water your plant requires for capacity operation at *1% to 10% of the cost of distilled water*. Maintenance is simple—no periodic dismantling for cleaning. Write for literature today.

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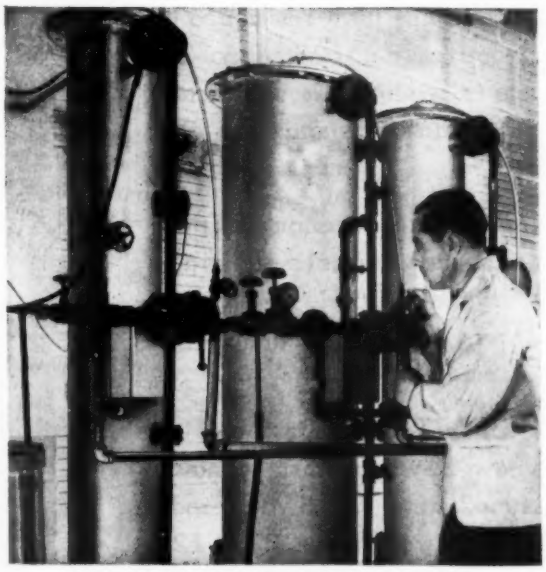

De-ionizing Unit above: 250 gallons per hour. Other available units have flow rates up to 500,000 gph.

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In addition, products can be made with thin finishes superior to chipping and breaking. Resistance to thermal shock at high temperatures is retained. Service life is extended. There is no enamel boiling and little or no sagging or warping at enameling heats. For Titanium stabilizes (or fixes) the carbon in steel. Resultant carbonless iron, having no yield point, is especially satisfactory for deep drawing.

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